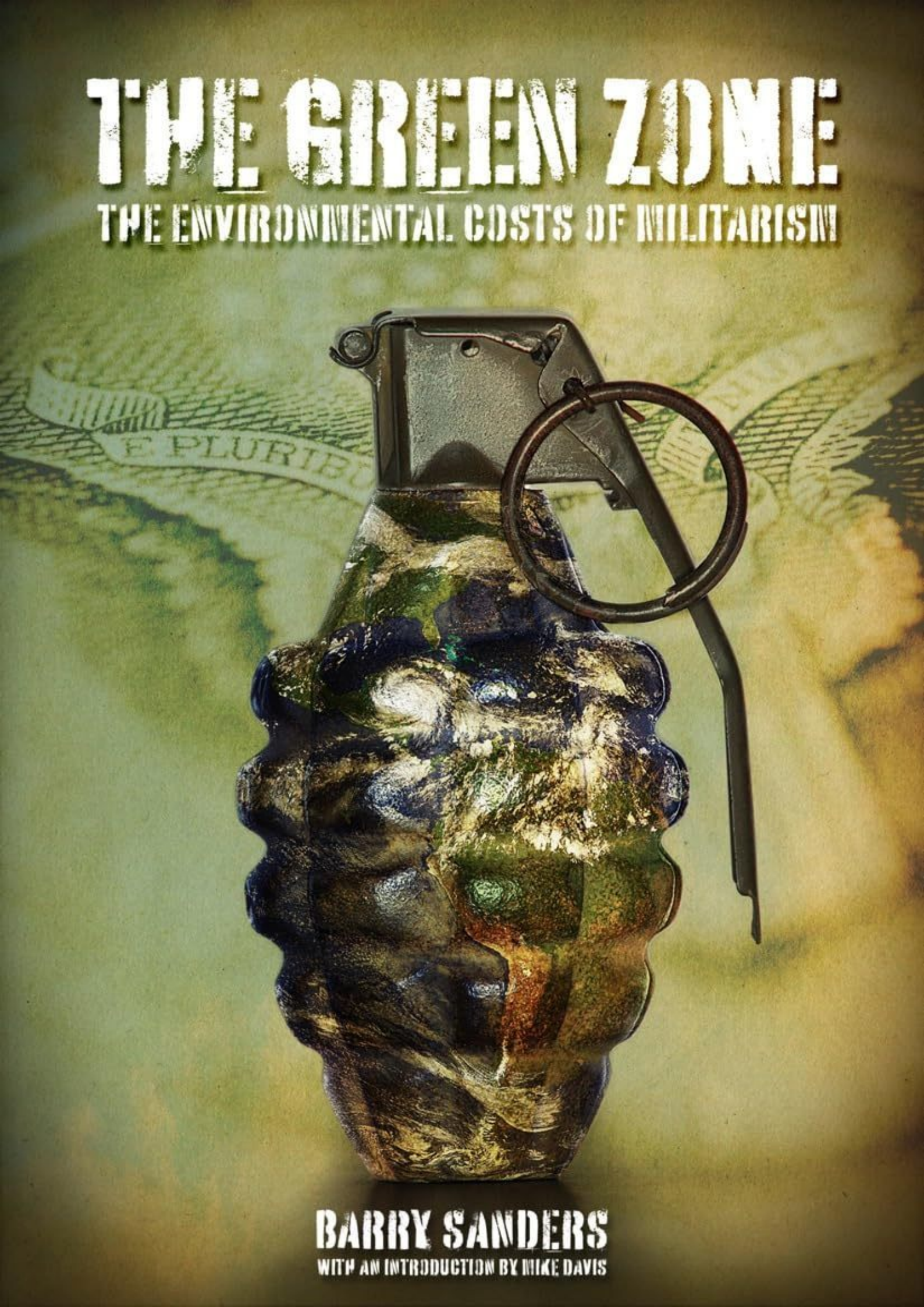
THE GREEN ZONE

THE ENVIRONMENTAL COSTS OF MILITARISM



BARRY SANDERS

WITH AN INTRODUCTION BY MIKE DAVIS

THE GREEN ZONE

THE ENVIRONMENTAL COSTS OF MILITARISM

THE GREEN ZONE

THE ENVIRONMENTAL COSTS OF MILITARISM

Barry Sanders

Foreword by Mike Davis

AK PRESS

EDINBURGH • OAKLAND • BALTIMORE

The Green Zone: The Environmental Costs of Militarism

by Barry Sanders © 2009
Foreword © Mike Davis, 2008
This edition © 2009 AK Press (Oakland, Edinburgh, Baltimore)

ISBN-13: 978-1-904859-94-9

Library of Congress Control Number: 2009922414

AK Press
674-A 23rd Street
Oakland, CA 94612
USA
www.akpress.org
akpress@akpress.org

AK Press
PO Box 12766
Edinburgh, EH8 9YE
Scotland
www.akuk.com
ak@akedin.demon.co.uk

The above addresses would be delighted to provide you with the latest AK Press distribution catalog, which features the several thousand books, pamphlets, zines, audio and video products, and stylish apparel published and/or distributed by AK Press. Alternatively, visit our web site for the complete catalog, latest news, and secure ordering. Visit us at www.akpress.org *and* www.revolutionbythebook.akpress.org.

Printed in Canada on acid free, recycled paper with union labor.

Cover by John Yates (stealworks.com)

Artist credits: Page 20: Nancy Franzino; p. 38: Ursula Barton; p. 46: Joel Preston Smith; p. 56: Daniel McCrossin Shinn; p. 64: Hannah Burgoyne; p. 82: Hannah Burgoyne; p. 94: Chelsea Renneke; p. 108: Joel Preston Smith; p. 124: Joel Preston Smith; p. 144: Matthew C. Grigsby; p. 162: Chelsea Renneke.

for Ken Olitt...

CONTENTS

Preface by Thomas Manley	1
Foreword by Mike Davis	7
Introduction	21
I Pollution: A Snapshot	39
II How Much Fuel?	47
III "Bigger, Faster, and More Sophisticated Weapons"	57
IV How Much Pollution? An Awful Lot	65
V Depleted Uranium	83
VI Bombs Away, All Day	95
VII The Fate of the Earth	109
VIII Afghanistan	125
Conclusion	145
Afterword	163
Notes	172

PREFACE
AS FAR AS THE WORD CAN SEE

THOMAS MANLEY

I have been thinking about Barry Sanders' *The Green Zone: The Environmental Costs of Militarism* and the influences it has had on the students, faculty, and staff at Pacific Northwest College of Art (PNCA). The essay and its author found their way into the "thinking water" of the school's curriculum in the fall of 2007, and now illustrations and design work from the school have found their way into this book. As the school's president, I couldn't be more proud.

Lately, I have been thinking, as well, about the methods of Black Mountain College and the way cutting-edge visiting artists and intellectuals were invited to collaborate with faculty and students, which, not infrequently, sparked projects that shaped contemporary art for the decades that followed. And, perhaps because I am making notes for this preface as I watch the incoming tide cover the last crests of mud and grass in Willapa Bay, I have been thinking, too, about the idea of green zones both as places on our planet and as environments that facilitate the practice of creativity and ethical intelligence.

PNCA is a 100-year old art school that fortunately resides in what is arguably one of the world's real green zones. Portland has the largest urban forest of any city in North America; Oregon offers breathtaking diversity in its natural landscapes; and the Pacific Northwest,

a mega region that creative economy guru Richard Florida calls Cascadia, has plentiful resources and resplendent beauty. Granted, the winters and springs are often rainy and gray, but its is also true that summers are simply glorious with long sunlit evenings, wild berries, roses, and mountain vistas that travel as far as the eye can see. But as I have learned since becoming an art college president, seeing is not always a matter of just looking, and sometimes the word can see farther than the eye.

And sometimes it takes a colossal mockery and fake to help us recognize the real thing, even in miniature. Sometimes it takes a few thousand words to help us see the bigger picture. Sometimes, yes, it may take a village, but at others it takes an art school where words and images are brought together powerfully. This is another kind of green zone, a place where even allegedly dangerous thoughts can pass in freely to be heard, discussed and developed further. In the intellectual green zone—words conjure images and vice versa. In the case of Barry Sanders and PNCA, the words came first.

Sanders' words are powerful. They have the capacity to lift the heaviest concepts and make them seem light as air. They can bust through the thickest built bunkers of deception and release the truth within; they blaze light into the spaces that have been kept in darkness, and they help make plain the brutal reality of what shock and awe really means to a city, its people, and the planet we all inhabit.

When I first read an early draft of *The Green Zone* I was simply stunned at the way a simple question—which no one in the mainstream media seemed willing to ask—could be posed so directly and answered so plainly with publicly available information. Then I realized that the question had also never occurred to me and yet it seemed so obvious. Why was that?

Surely there has been no dearth of words about the catastrophe that is the Iraq war and not by a long shot were they all meant to buttress arguments or rationalizations for its legitimacy. But these words were mainly in a language that weighed political content and consequences, even when they referenced the transpiring tragedy. Lodged

in the political, they were dumb to other sounds, implications, questions, and above all, contexts. And we were all dumb to the irony of calling the fortress in the center of the catastrophe a *green zone.*

I didn't ask him, but my guess is that Barry Sanders had that irony in mind. He could *see* in words and he used them to penetrate the roadblocks and checkpoints of the bogus Green Zone by knowing how to read what wasn't on the given map. That is often what artists help us do: navigate the backstreets and alleys to bring us to a familiar spot, but from an altogether different direction and level of understanding. And that is why after reading *The Green Zone* I asked Barry's permission to share it with some of the faculty at PNCA. My thought was that illustrating his already astonishing text with visual explanations would make it even more hard hitting and effective.

Art schools are very much about the work of teaching students to see, read, and create visual ecology. Images are our daily informational bread. On average we encounter 4,000 new sight-bites a day and translate those into 70 percent of our informational intake. But while we absorb these images, we are too frequently unable to read their fuller meaning or understand how they are put together and why.

At PNCA there are close to 500 students, who are intensely engaged in developing their skills as visual communicators. Guiding these students is an amazing faculty of about seventy individuals, mostly working visual artists and designers, but also scholars, writers, scientists, and mathematicians. The curriculum is centered on studio learning and thinking, which is to say it is organized around developing the habits of mind, eye, and hand that prepare our students to pursue lives of creative practice in the many directions that may take them.

I first sent digital copies of *The Green Zone* to a few members of the faculty, asking if there would be any interest in having students in their classes work on graphically interpreting the text. Among those who responded, Martin French from Illustration, Daniel Duford and Anne Marie Oliver from Intermedia, and John Calvelli from Communication Design, eventually held a meeting with Sanders to

discuss how they might work with his text. (I remember running into Calvelli in the hall shortly after the meeting. He thought the essay so important that he proposed requiring all classes throughout the College to work on it.)

From this point, *The Green Zone* quickly made its way around the faculty and found its way into class assignments and discussions. Calvelli reset and enlarged the text and placed it on the wall of the College commons for all passersby to read. The poet Kim Stafford, PNCA's writer in residence, made it a focal point of his writing workshops, and the student government debated how to become involved. Soon illustrations, prints, design posters, and photographs began to appear in various corridors dedicated to the school's different media and the *Green Zone* text was growing graphic before our eyes.

The liberal arts and science faculty became involved as well and *The Green Zone* became part of courses in art history, literature and environmental science. Before long, faculty, students, and staff were floating a funding proposal to the president's office to support a two-day conference centered on the essay as part of the national "Focus the Nation" on global warming scheduled for late January 2008. (How could the president say no?)

While I was not surprised that so many PNCA faculty and students responded to Barry Sanders' text (and even more enthusiastically to Barry Sanders) with seriousness and commitment, the prairie-fire sweep of their involvement and the growing momentum of the efforts did impress me. I had always admired the experimental spirit of Black Mountain College and it seemed to me that faculty and students had managed something akin to that—something that would influence us all for a long time.

Sanders himself was responsible for much of this working. For, as great teachers do, he gave generously of his time, agreeing to every request to speak in a class, being interviewed on the college radio, and attending dozens of meetings and plotting sessions often co-led by Kim Stafford. Together, they operated as roving intellectuals or as someone dubbed them, PNCA's free-range radicals.

The resultant "Focus the Nation" conference—I took to calling it a "Draw-in"—was rich with workshops, speakers, and images and concluded with a surprise concert by James Mercer of the Shins. It was a singular success and drew the attentions and attendance of the Portland community in significant ways. For some weeks after the conference, the splash page of PNCA website featured the *Green Zone* illustrations and other artwork our students had created. These images—the majority of which now accompany this volume—represented visual translations of various aspects of the text, and thousands of daily visitors to the College's website encountered them and the narrative of the project.

As someone who has spent most of his adult life working at colleges and thinking about how to make the education offered to students as powerful as possible, I have come to greatly admire what schools such as PNCA represent and what our students and faculty bring into the world through their imagination and creativity. At PNCA and places like it, there is an inherent respect for the quality of knowledge that comes through the experience of *making* work, rather than that gained only through traditional academic study. And there is openness, especially on the part of our faculty, to the indispensable value that different perspectives and practices add in texture and depth to a student's leaning experience. Again, I reference the legendary visiting artist programs and summer institutes that Josef Albers and his associates developed at Black Mountain College. They embraced and relished this same type of openness. In the hills of the Blue Ridge in North Carolina, they also lived in a an authentic green zone, in terms of the natural environment and the environment of ideas.

There is really no telling where PNCA's collaboration with Barry Sanders and *The Green Zone* will lead. Other faculty members have already suggested new projects, and some of these have begun to gel. Perhaps more to the point the students who became involved and whose work now accompanies and elaborates Sanders' words, have had the opportunity to apply the skills, techniques, and knowledge they acquired at PNCA and through this project in original ways.

The habits of a studio arts education they have cultivated contribute to our larger collective repertoire for healing through imagination, creativity, and collaboration, and for ultimately restoring to ecological and ethical balance what has been badly despoiled through intolerance, neglect, and duplicity.

Thomas Manley
President, PNCA

FOREWORD
LIVING ON THE ICE SHELF: HUMANITY'S MELT DOWN

MIKE DAVIS

1. FAREWELL TO THE HOLOCENE

Our world, our old world that we have inhabited for the last 12,000 years, has ended, even if no newspaper in North America or Europe has yet printed its scientific obituary.

This February, while cranes were hoisting cladding to the 141st floor of the Burj Dubai tower (which will soon be twice the height of the Empire State Building), the Stratigraphy Commission of the Geological Society of London was adding the newest and highest storey to the geological column.

The London Society is the world's oldest association of Earth scientists, founded in 1808, and its Commission acts as a college of cardinals in the adjudication of the geological time-scale. Stratigraphers slice up Earth's history, as preserved in sedimentary strata, into hierarchies of eons, eras, periods, and epochs marked by the "golden spikes" of mass extinctions, speciation events, and/or abrupt changes in atmospheric chemistry.

In geology, as in biology or history, periodization is a complex, controversial art, and the most bitter feud in nineteenth-century British science—still known as the "Great Devonian Controversy"—was fought over competing interpretations of homely Welsh graywackes

and English Old Red Sandstone. More recently, geologists have quarreled over the boundaries of the ice-age oscillations that characterized the earth for the last 2.8 million years. Some have never accepted that the most recent inter-glacial warm interval—the Holocene—should be distinguished as an "epoch" in its own right just because it encompasses the history of civilization.

As a result, contemporary stratigraphers have set extraordinarily rigorous standards for the beatification of any new geological divisions. Although the idea of the "Anthropocene"—an Earth epoch defined by the emergence of urban-industrial society as a geological force—has been long debated, stratigraphers have refused to acknowledge compelling evidence for its advent.

At least for the London Society, that position has now been revised. To the question, "Are we now living in the Anthropocene?," the twenty-one members of the Commission unanimously answer "yes." They adduce robust evidence that the Holocene epoch—the interglacial span of unusually stable climate that has allowed the rapid evolution of agriculture and urban civilization—has ended and that the Earth has entered "a stratigraphic interval without close parallel in the last several million years." In addition to the buildup of greenhouse gases, the stratigraphers cite human landscape transformation, which "now exceeds [annual] natural sediment production by an order of magnitude," the ominous acidification of the oceans, and the relentless destruction of biota.

This new age, they explain, is defined both by the heating trend (whose closest analog may be the catastrophe known as the Paleocene Eocene Thermal Maximum, 56 million years ago) and by the radical instability expected of future environments. In somber prose, they warn that "the combination of extinctions, global species migrations and the widespread replacement of natural vegetation with agricultural monocultures is producing a distinctive contemporary biostratigraphic signal. These effects are permanent, as future evolution will take place from surviving (and frequently anthropogenically relocat-

ed) stocks." Evolution itself, in other words, has been forced into a new trajectory.

2. SPONTANEOUS DECARBONIZATION?

The Commission's coronation of the Anthropocene coincides with growing scientific controversy over the 4th Assessment Report issued last year by the Intergovernmental Panel on Climate Change (IPCC). The IPCC is mandated to establish scientific baselines for international efforts to mitigate global warming, but some of the most prominent researchers in the field are now challenging its reference scenarios as overly optimistic, even pie-in-the-sky thinking.

The current scenarios were adopted by the IPCC in 2000 to model future global emissions based on different "storylines" about population growth, as well as technological and economic development. Some of the panel's major scenarios are well-known to policymakers and greenhouse activists, but few outside the research community have actually read or understood the fine print, particularly the IPCC's confidence that greater energy efficiency will be an "automatic" byproduct of future economic development. Indeed, all the scenarios, even the "business as usual" variants, assume that at least 60 percent of future carbon reduction will occur independently of greenhouse mitigation measures.

The panel, in effect, has bet the ranch, or rather the planet, on unplanned, market-driven progress toward a post-carbon world economy, a transition that implicitly requires wealth generated from higher energy prices ultimately finding its way to new technologies and renewable energy. (The International Energy Agency recently estimated that it would cost $45 trillion to halve greenhouse gas emissions by 2050.) Kyoto-type accords and carbon markets are designed—almost as an analog to Keynesian "pump-priming"—to bridge the shortfall between spontaneous decarbonization and the emissions targets required by each scenario. Serendipitously, this reduces the costs of mitigating global warming to levels that align with what seems, at least theoretically, to be politically possible, as

expounded in the British *Stern Review on the Economics of Climate Change* of 2006 and other such reports.

Critics argue, however, that this represents a heroic leap of faith that radically understates the economic costs, technological hurdles, and social changes required to tame the growth of greenhouse gases. European carbon emissions, for example, are still rising (dramatically in some sectors), despite the European Union's much praised adoption of a cap-and-trade system in 2005. Likewise there has been little evidence in recent years of the automatic progress in energy efficiency that is the *sine qua non* of the IPCC scenarios. Although *The Economist* characteristically begs to differ, most energy researchers believe that, since 2000, energy intensity has actually risen; that is, global carbon dioxide emissions have kept pace with, or even grown marginally faster than, energy use.

Coal production, especially, is undergoing a dramatic renaissance, as the nineteenth century has returned to haunt the twenty-first century. Hundreds of thousands of miners are now working under conditions that would have appalled Charles Dickens, extracting the dirty mineral that allows China to open two new coal-fueled power stations every week. Meanwhile, the total consumption of fossil fuels is predicted to increase at least 55 percent over the next generation, with international oil exports doubling in volume.

The United Nations Development Program, which has made its own study of sustainable energy goals, warns that it will require "a 50 percent cut in greenhouse gas emissions worldwide by 2050 against 1990 levels" to keep humanity outside the red zone of runaway warming (usually defined as a greater than two degrees centigrade increase this century). Yet the International Energy Agency predicts that, in all likelihood, such emissions will actually increase in this period by nearly 100 percent—enough greenhouse gas to propel us past several critical tipping points.

Even while higher energy prices are pushing SUVs towards extinction and attracting more venture capital to renewable energy, they are also opening the Pandora's box of the crudest of crude oil pro-

duction from Canadian tar sands and Venezuelan heavy oil. As one British scientist has warned, the very last thing we should wish for (under the false slogan of "energy independence") is new frontiers in hydrocarbon production that advance "humankind's ability to accelerate global warming" and slow the urgent transition to "non-carbon or closed-carbon energy cycles."

FIN-DU-MONDE BOOM

What confidence should we place in the capacity of markets to reallocate investment from old to new energy or, say, from arms expenditures to sustainable agriculture? We are propagandized incessantly (especially on public television) about how giant companies like Chevron, Pfizer Inc., and Archer Daniels Midland are hard at work saving the planet by plowing profits back into the kinds of research and exploration that will ensure low-carbon fuels, new vaccines, and more drought-resistant crops.

As the current ethanol-from-corn boom, which has diverted 100 million tons of grain from human diets mainly to American car engines, so appallingly demonstrates, "biofuel" may be a euphemism for subsidies to the rich and starvation for the poor. Likewise "clean coal," despite a vigorous endorsement from then-Senator Barack Obama (who also champions ethanol), is, at present, simply a huge deception: a $40 million advertising and lobbying campaign for a hypothetical technology that *Business Week* has characterized as "being decades away from commercial viability."

Moreover, there are disturbing signs that energy companies and utilities are reneging on their public commitments to the development of carbon-capture and alternative-energy technologies. The Bush administration's "marquee demonstration project," FutureGen, was scrapped this year after the coal industry refused to pay its share of the public-private "partnership"; similarly, most U.S. private-sector carbon-sequestration initiatives have recently been cancelled. In the United Kingdom, meanwhile, Shell has just pulled out of the world's largest wind-energy project, the London Array. Despite heroic levels

of advertising, energy corporations, like pharmaceutical companies, prefer to overgraze the commons, while letting taxes, not profits, pay for whatever urgent, long-overdue research is actually undertaken.

On the other hand, the spoils from high energy prices continue to gush into real estate, skyscrapers, and financial assets. Whether or not we are actually at the summit of Hubbert's Peak—that peak oil moment—whether or not the oil-price bubble finally bursts, what we are probably witnessing is the largest transfer of wealth in modern history.

An eminent Wall Street oracle, McKinsey Global Institute, predicts that if crude oil prices remain above $100 per barrel—they are, at the moment, approaching $140 a barrel—the six countries of the Gulf Cooperation Council alone will "reap a cumulative windfall of almost $9 trillion by 2020." As in the 1970s, Saudi Arabia and its Gulf neighbors, whose total gross domestic product has almost doubled in just three years, are awash in liquidity: $2.4 trillion in banks and sovereign wealth funds according to a recent estimate by *The Economist*. Regardless of price trends, the International Energy Agency predicts, "more and more oil will come from fewer and fewer countries, primarily the Middle East members of OPEC [The Organization of the Petroleum Exporting Countries]."

Dubai, which has little oil income of its own, has become the regional financial hub for this vast pool of wealth, with ambitions to eventually compete with Wall Street and the city of London. During the first oil shock in the 1970s, much of OPEC's surplus was recycled through military purchases in the United States and Europe, or parked in foreign banks to become the "subprime" loans that eventually devastated Latin America. In the wake of the attacks of 9/11, the Gulf states became far more cautious about entrusting their wealth to countries like the United States governed by religious fanatics. This time around, they are using "sovereign wealth funds" to achieve a more active ownership in foreign financial institutions, while investing fabulous amounts of oil revenue to transform Arabia's sands into

hyperbolic cities, shopping paradises, and private islands for British rock stars and Russian gangsters.

Two years ago, when oil prices were less than half of the current level, *The Financial Times* estimated that planned new construction in Saudi Arabia and the emirates already exceeded $1 trillion. Today, it may be closer to $1.5 trillion—considerably more than the total value of world trade in agricultural products. Most of the Gulf city-states are building hallucinatory skylines—and, among them, Dubai is the unquestionable superstar. In a little more than a decade, it has erected 500 skyscrapers, and currently leases one-quarter of all the high-rise cranes in the world.

This super-charged Gulf boom, which celebrity architect Rem Koolhaas claims is "reconfiguring the world," has led Dubai developers to proclaim the advent of a "supreme lifestyle" represented by seven-star hotels and private islands. Not surprisingly, then, the United Arab Emirates and its neighbors have the biggest per capita ecological footprints on the planet. Meanwhile, the rightful owners of Arab oil wealth, the masses crammed into the angry tenements of Baghdad, Cairo, Amman, and Khartoum, have little more to show for it than a trickle-down of oil-field jobs and Saudi-subsidized *madrassas*. While guests enjoy the $5,000 per night rooms in Burj Al-Arab, Dubai's celebrated sail-shaped hotel, working-class Cairenes riot in the streets over the unaffordable price of bread.

CAN MARKETS ENFRANCHISE THE POOR?

Emissions optimists, of course, will smile at all the gloom-and-doom and evoke the coming miracle of carbon trading. What they discount is the real possibility that a sprawling carbon-offset market may emerge, just as predicted, yet produce only minimal improvement in the global carbon balance-sheet as long as there is no mechanism for enforcing real net reductions in fossil fuel use.

In popular discussions of emissions-rights trading systems it is common to mistake the smokestacks for the trees. For example, the wealthy oil enclave of Abu Dhabi (the senior partner of Dubai in the

United Arab Emirates) loudly brags that it has planted more than 130 million trees—each of which does its duty in absorbing carbon dioxide from the atmosphere. But this same artificial forest in the desert also consumes huge quantities of irrigation water produced or recycled from expensive desalination plants. The trees may allow Sheik Khalifa bin Zayed to wear a halo at international meetings, but the rude fact is that they are an energy-intensive beauty strip, like most of so-called green capitalism.

And, while we're at it, let's just ask: What if the buying and selling of carbon credits and pollution offsets fails to turn down the thermostat? What exactly will motivate governments and global industries then to join hands in a crusade to reduce emissions through regulation and taxation?

Kyoto-type climate diplomacy assumes that all the major actors, once they have accepted the science in the IPCC reports, will recognize an overriding common interest in gaining control over the runaway greenhouse effect. But global warming is not *War of the Worlds*, where invading Martians are dedicated to annihilating all of humanity without distinction. Climate change, instead, will initially produce dramatically unequal impacts across regions and social classes, reinforcing, rather than diminishing, geopolitical inequality and conflict.

As the United Nations Development Programme emphasized in its report last year, global warming is, above all, a threat to the poor and the unborn, the "two constituencies with little or no political voice."

Coordinated global action on their behalf thus presupposes either their revolutionary empowerment (a scenario not considered by the IPCC) or the transmutation of the self-interest of rich countries and classes into an enlightened "solidarity" without precedent in history. From a rational-actor perspective, the latter outcome only seems realistic if it can be shown that privileged groups possess no preferential "exit" option; that internationalist public opinion drives policy-making in key countries; and that greenhouse gas mitigation could be

achieved without major sacrifices in upscale Northern Hemispheric standards of living—none of which seems highly likely.

And what if growing environmental and social turbulence, instead of galvanizing heroic innovation and international cooperation, simply drive elite publics into even more frenzied attempts to wall themselves off from the rest of humanity? Global mitigation, in this unexplored but not improbable scenario, would be tacitly abandoned (as, to some extent, it already has been) in favor of accelerated investment in selective adaptation for Earth's first-class passengers. We're talking here of the prospect of creating green and gated oases of permanent affluence on an otherwise stricken planet.

Of course, there will still be treaties, carbon credits, famine relief, humanitarian acrobatics, and perhaps the full-scale conversion of some European cities and small countries to alternative energy. But the shift to low, or zero, emission lifestyles would be almost unimaginably expensive. (In Britain, it currently costs $200,000 more to build a zero-carbon, "level 6" eco-home than a standard unit of the same area.) And this will certainly become even more unimaginable after, perhaps, 2030, when the convergent impacts of climate change, peak oil, peak water, and an additional 1.5 billion people on the planet may begin to seriously throttle growth.

THE NORTH'S ECOLOGICAL DEBT

The real question is this: Will rich counties *ever* mobilize the political will and economic resources to actually achieve IPCC targets or, for that matter, to help poorer countries adapt to the inevitable, already "committed" quotient of warming now working its way through the slow circulation of the world ocean?

To be more vivid: Will the electorates of the wealthy nations shed their current bigotry and walled borders to admit refugees from predicted epicenters of drought and desertification like the Maghreb, Mexico, Ethiopia, and Pakistan? Will Americans, the most miserly people, when measured by per capita foreign aid, be willing to tax

themselves to help relocate the millions likely to be flooded out of densely settled, mega-delta regions like Bangladesh?

Market-oriented optimists, once again, will point to carbon offset programs like the Clean Development Mechanism which, they claim, will allow green capital to flow to the Third World. Most of the Third World, however, probably prefers for the First World to acknowledge the environmental mess it has created and take responsibility for cleaning it up. They rightly rail against the notion that the greatest burden of adjustment to the Anthropocene epoch should fall on those who have contributed least to carbon emissions and drawn the slightest benefits from 200 years of industrialization.

In a sobering study recently published in the *Proceedings of the [U.S.] National Academy of Science*, a research team has attempted to calculate the environmental costs of economic globalization since 1961, as expressed in deforestation, climate change, overfishing, ozone depletion, mangrove conversion, and agricultural expansion. After making adjustments for relative cost burdens, they found that the richest countries by their activities had generated 42 percent of environmental degradation across the world, while shouldering only 3 percent of the resulting costs.

The radicals of the South will rightly point to another debt as well. For thirty years, cities in the developing world have grown at breakneck speed without any equivalent public investment in infrastructure services, housing, or public health. In large part, this has been the result of foreign debts contracted by dictators, payments enforced by the International Monetary Fund, and public sectors wrecked by the World Bank's "structural adjustment" agreements.

This planetary deficit of opportunity and social justice is well caught by the fact that more than one billion people, according to UN Habitat, currently live in slums and that their number is expected to double by 2030. An equal number, or more, forage in the so-called informal sector (a first-world euphemism for mass unemployment). Sheer demographic momentum, meanwhile, will increase the world's urban population by 3 billion people over the next 40 years (90 per-

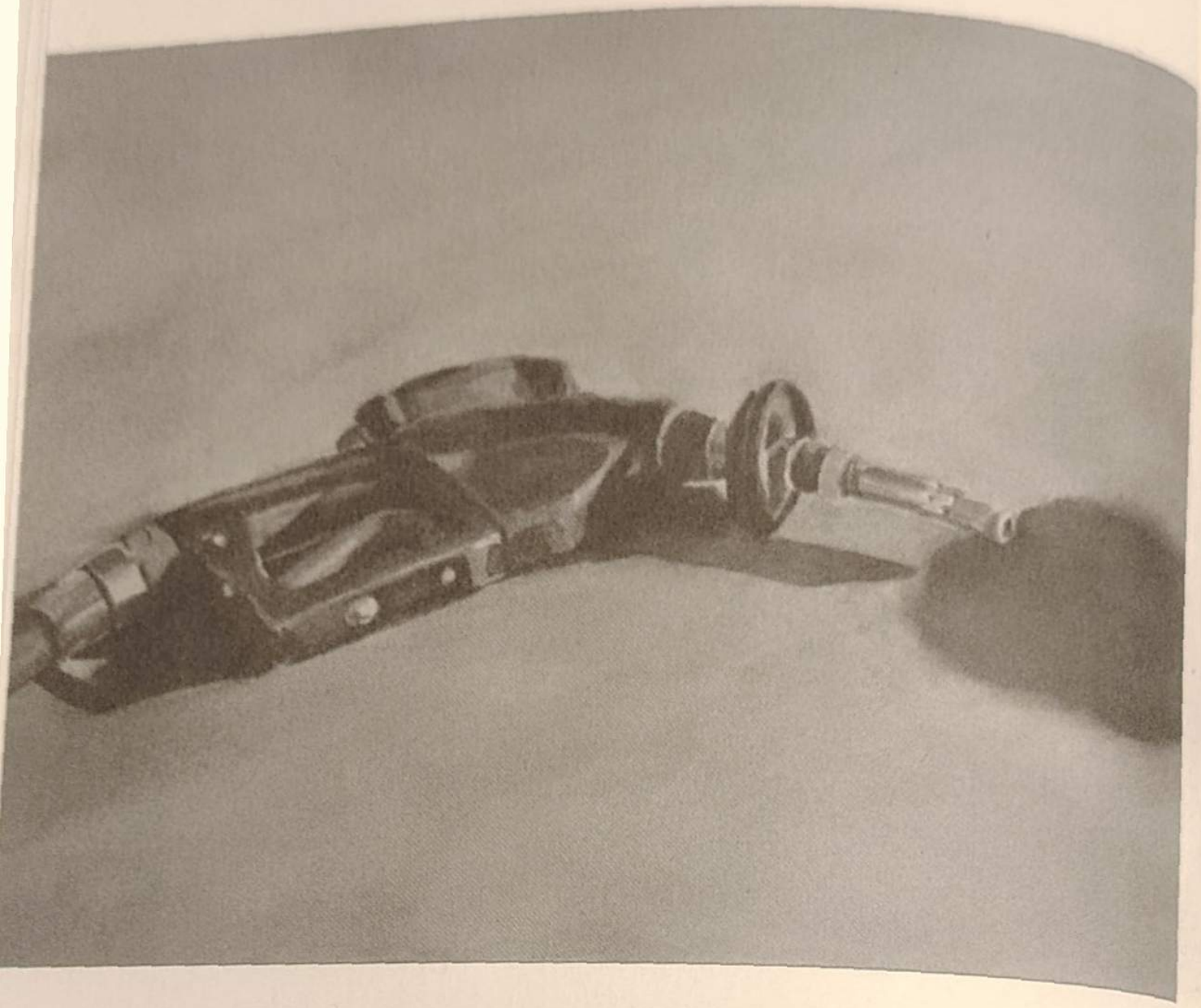
cent of them in poor cities), and no one—absolutely no one—has a clue how a planet of slums, with growing food and energy crises, will accommodate their biological survival, much less their inevitable aspirations to basic happiness and dignity.

If this seems unduly apocalyptic, consider that most climate models project impacts that will uncannily reinforce the present geography of inequality. One of the pioneer analysts of the economics of global warming, Petersen Institute fellow William R. Cline, recently published a country-by-country study of the likely effects of climate change on agriculture by the later decades of this century. Even in the most optimistic simulations, the agricultural systems of Pakistan (-20 percent of current farm output) and Northwestern India (-30 percent) are likely devastated, along with much of the Middle East, the Maghreb, the Sahel belt, Southern Africa, and the Caribbean and Mexico. Twenty-nine developing countries will lose 20 percent or more of their current farm output to global warming, while agriculture in the already rich north is likely to receive, on average, an 8 percent boost.

In light of such studies, the current ruthless competition between energy and food markets, amplified by international speculation in commodities and agricultural land, is only a modest portent of the chaos that could soon grow exponentially from the convergence of resource depletion, intractable inequality, and climate change. The real danger is that human solidarity itself, like a West Antarctic ice shelf, will suddenly fracture and shatter into a thousand shards.

Of course the people don't want war... But after all, it is the leaders of the country who determine the policy, and it's always a simple matter to drag the people along... All you have to do is tell them they are being attacked, and denounce the pacifists for lack of patriotism and exposing the country to danger. It works the same in any country.

—Hermann Goering, at the Nuremberg Trials, 1946.



INTRODUCTION

Over the years, my family has bought three or four little books on how to lead the greenest life possible. We've all seen those well-intentioned pamphlets at the checkout counters of bookstores and grocery stores: *Fifty Ways to Save the Planet*; *Going Totally Green*; *Making a Difference*; and so on. While they may pale these days considering the enormity of the environmental crisis, we nonetheless still take the advice to heart, choosing low-energy light bulbs, installing low-flush toilets, turning down the thermostat, refusing to warm up the car's engine for extended periods, and on and on. Every little bit helps, as the experts tell us, and, besides, we need to feel that we are doing something. But no list in any of those books addresses the largest single source of pollution in this country and in the world: the United States military—in particular, the military in its most ferocious and stepped-up mode—namely, the military at war.

In a nation like ours, where military might trumps diplomatic finesse, the supreme irony may be that the planet, and not human beings, will provide the most stringent corrective to political overreaching. The earth can no longer absorb the punishment of war, especially on a scale and with a ferocity that only the wealthiest, most powerful country in the world—no, in history—knows how to deliver. While

the United States military directed its "Operation Iraqi Freedom" solely against the Iraqis, no one—not a single citizen in any part of the globe—has escaped its fallout. When we declare war on a foreign nation, we now also declare war on the Earth, on the soil and plants and animals, the water and wind and people, in the most far-reaching and deeply infecting ways. A bomb dropped on Iraq explodes around the world. We have no way of containing the fallout. Technology fails miserably here. War insinuates itself, like an aberrant gene and, left unchecked, has the capacity for destroying the Earth's complex and sometimes fragile system.

So we can act like honorable and conscientious citizens, conserving all the energy we can. We can feel good about all those glossy magazine ads from Shell and Exxon Mobil telling us how their companies now treasure the environment, producing their fuels in the cleanest ways possible. We can fall for Detroit's latest news, too, convincing us of a revolutionary breakthrough in fuel efficiency: 300 horsepower cars that get still 30 or 32 miles per gallon on the highway. But that's just insanity wearing a green disguise. None of those advertised boasts and claims really matter. They still cling to fossil fuels and further our campaign to kill off everything on the planet with our addictive need. But, even if those claims did make a slight difference, even if we could slow down global warming, ultimately it would not matter. For, in the background, lurking and ever-present, a giant vampire silently sucks out of the Earth all the oil it possibly can, and no one stops it. And so here's the awful truth: even if every person, every automobile, and every factory suddenly emitted zero emissions, the Earth would still be headed head first and at full speed toward total disaster for one major reason. The military—that voracious vampire—produces enough greenhouse gases, by itself, to place the entire globe, with all its inhabitants large and small, in the most immanent danger of extinction.

As we contemplate America in the opening years of the twenty-first century, then, let us reconsider George Washington's farewell warning that "overgrown military establishments…under any form

of government, are inauspicious to liberty, and are to be regarded as particularly hostile to republican liberty." Today, our own military has grown beyond an institution hostile to liberty and has wrapped its arms of death around life itself. And, from all the available evidence, it will not let go. Unlike most animals, the military has no surrender mechanism. Unless we all summon the strength to confront the military—no easy task—it will continue to work its evil.

I write as a citizen, not a politician; as a layman, not a scientist; as an outsider from the academy, not an insider from the Pentagon. Most of the information that I present here us deliberately withheld from the general public, made intentionally obscure, folded inside arcane reports, or hidden on hard-to-find governmental websites by the Department of Defense (DoD), or the Pentagon, or the General Accounting Office. Researching the military is like trying to uncover the truth in the former Soviet Union. Governments always conduct a good deal of their business in clandestine ways. The Bush administration, however, enjoyed the well-earned reputation as particularly deceptive, tight-lipped, secretive, and downright hostile to the most routine questions and probes—and especially over things that appeared so obviously illegal, like spying on citizens through wiretapping telephone calls and intercepting international e-mail messages, all without the legally required warrants. We will see how eager the Obama administration will be to reveal its inner workings. Transparency was one of the goals of Obama's campaign, and he repeated that mantra over and over again.

About the most critical and freighted issue, like declaring war on another nation, the Bush administration broadcasted the boldest of lies, announcing to the American public that Saddam Hussein possessed weapons of mass destruction, and that unless we took military action the world faced the horror of evaporating in a mushroom cloud. Bush, Cheney, and their assorted neo-conservative hawks met in secret directly following the attack of 9/11, determining ways it could circumvent the Geneva Convention, holding indefinitely any-

one the President desired without leveling charges or granting judicial review.

Bush invoked executive privilege, extending it, oddly enough, to his Vice President, who argued, strangely, that he was not part of the executive branch; the Department of Justice seemed bent on destroying records, like e-mail messages that circulated between key members of the department; and the CIA deliberately destroyed videotaped interrogations of Guantanamo detainees that purportedly showed evidence of torture, including simulated drowning, or what has come to be known, in the most neutered language, as if it were a summer pastime, "water boarding." All the while, the Bush administration complained about the opaqueness inside those nations that Bush placed on the Axis of Evil, nations like Iran, Iraq, and North Korea.

The Bush administration's level of arrogance and secretiveness stood terribly at odds with a growing number of citizens who wanted to know what was going on, who wanted to know, as precisely as possible, what acts the government committed, both in this country and around the world, in their name. Perhaps the liberation movements of the sixties and seventies encouraged such an inquiring spirit. Perhaps the Internet, too, has helped to foster a climate of snooping. And, then, of course, breaking the government's stranglehold on secrecy enjoys the precedent of one of the most monumental, revealing, and politicizing leaks in history: Daniel Ellsberg's dissemination, in 1971, of 7,000 pages of top-secret information on the conduct of the war in Vietnam, that the *New York Times* published as *The Pentagon Papers*.

Whatever the reason, people now believe strongly that it is their right to have more and more of the facts. Citizens demand disclosure. Even the most apolitical of people now demand their republic back. Millions of Americans, some who had never in their lives gone to the polls, voted for Barack Obama for just that reason. For eight long years, the Bush administration held the citizens of this country hostage to fear and war and the threat of foreign invasion and

attack, compounded by the additional threat of the immigration of millions of so-called "illegal aliens" from Mexico and Latin America. We might do well to pay attention, once more, to that one particular part of Washington's warning to his countrymen: "Overgrown military establishments...are inauspicious to liberty."

But before we rejoice too soon in the new administration, recall that, directly before the election, Obama sounded very much like the old administration when he announced that he would probably need to send two more battalions into the foothills of Afghanistan. Bin Laden is still the prize; victory is still the illusion. War is still the way. The impulse toward war transcends parties: Republicans defend their war in Iraq; Democrats defend Kosovo. Saddam Hussein is a tyrant and practiced genocide on the Kurds. Slobodan Milosovic is a tyrant and practiced genocide on the Albanians. The names change, the nations shift, but the war drums reverberate with their same incessant and insistent beat. And almost everyone listens—conservatives and liberals—and almost everyone responds.

Both Democratic and Republican senators and representatives authorized the use of force in Iraq on October 11, 2002. Yes, some brave voices voted no—156 in all (23 senators and 133 representatives). I applaud those 156 souls, but how is it that millions upon millions of ordinary citizens could see through the trumped-up intelligence reports and stepped-up speeches, and took to the streets marching and demonstrating and shouting No to the war? War holds a certain fascination for politicians, as if it were the highest achievement of their careers, in the name of keeping democracy intact. The so-called "Last Great War" seems to color every decision to invade the next country on the enemies list, allowing the latest round of politicians, once again, to stand tall to save the world from out-and-out tyranny.

The war in Iraq has produced an odd series of books. Academics and journalists have written far fewer of the usual books on the strategy and history of the Iraq War, and many more on the chicanery, clandestine meetings, and outright secrecy of the Bush White House in the pursuit of that war. The titles rolled out of the old-line New

York publishing houses and from independent presses in the thousands. An awful lot in Washington was rotten; you could smell it everywhere. And the smell, I am afraid, lingers. And the revelations keep coming.

We recently found out, for instance, that even the highly guarded and highly secret Guantanamo Prison, perched on forty-five acres in the foothills of Cuba, contains somewhere within its boundaries—or maybe even outside its borders—an internal and even more secret prison that goes by the name Camp 7, which supposedly held fifteen "high value detainees." The existence of the prison within a prison became known only on December 8, 2007, from declassified notes belonging to a battery of attorneys who had come to represent other prisoners. Guards routinely gave tours of Guantanamo to reporters and visiting dignitaries, but they allowed no one to see Camp 7. Secretary of Defense Robert Gates declared it off limits and will not even say who has responsibility for its oversight.[1]

"Not everybody, even those with the Joint Task Force, has access or even knowledge of where Camp 7 is," Army Colonel Bruce Vargo told an AP reporter. Colonel Vargo served as commander of the military's Joint Detention Group at Guantanamo, and he is quick to point out that he had absolutely no responsibility for Camp 7.[2] This dodge turns out to be quite convenient, for if no one has direct responsibility for the camp then no one can be held responsible for the tortures that purportedly took place within its stone walls—no one, of course, but a handful of low level soldiers, who the Bush administration tagged as the really "bad apples," and who managed with their actions to spoil the entire bushel. A bipartisan senate report released on December 11, 2008, concludes something different: "the physical and mental abuse of detainees in Iraq, Afghanistan, and Guantanamo Bay, Cuba, was the direct result of Bush administration detention policies and should not be dismissed as the work of bad guards or interrogators."[3]

More and more Americans now want to know the price of supposedly opening freedom's door for other people in other countries. And, if our own government refuses to tell us, other countries no lon-

ger stay mum, but now feel comfortable in delivering the awful news. We have engendered such ill will around the world that our former colonial subjects feel a great sense of power and relief in tattling on the world's great big bully. And they speak out now quite readily.

Who are they? Well, Chalmers Johnson lists the countries in his book, *Blowback: The Cost and Consequences of American Empire.* Johnson reaches back some fifty years—of course, our aggression has gone on for much longer—and his list covers a great deal of the world:

> The American people may not know what is done in their name, but those on the receiving end surely do—including the people of Iran (1953), Guatemala (1954), Cuba (1959 to the present), Congo (1960), Brazil (1964), Indonesia (1965), Vietnam (1961–73), Laos (1961–73), Cambodia (1961–73), Greece (1967–74), Chile (1974), Afghanistan (1979 to the present), El Salvador, Guatemala, Nicaragua (1980s), and Iraq (1991 to the present), to name only the most obvious cases.[4]

Once our military moves into a place, it does not leave. We advertise our role as peace keeping, or border patrolling, or as some other euphemistic kind of undertaking, but the evidence leads a person to conclude only one thing: having visited, having occupied, the United States Armed Forces do not ever leave. "Nation building" (or in the case of Iraq, "nation re-building") always turns out to be an episode in colonizing and crippling the other.

To try to get to the truth, I rely on my own digging—in military manuals, government and anti-government websites, in reference books, exposés, and in an increasing number of leaked memos. I also rely heavily on the work of a dedicated and dogged cadre of inspired citizens, who have managed to mine important data from the most varied and, at times, the most unlikely of sources, and who have published their findings on blogs and websites and i-newsletters. The country owes a great deal of thanks to that motley band of Insurgents of the Internet. In many cases, they have put the major newspapers (and the majority of the most prominent politicians) in this country to shame.[5]

And then, of course, we must give our thanks and praise to those brave journalists who, against efforts to censure and frighten them, continue to report from the Middle East, in general. A few independent photographers traveled to Iraq before the beginning of Shock and Awe, and made Americans familiar with ordinary Iraqi men, women, and children trying to cope with impending death. And, over the years, we have had bloggers, who, at great risk to their own lives, continued to send reports from Baghdad and, most impressive, continued to send them from outside the fortified boundaries of the so-called Green Zone, from remote and dangerous villages.

Finding answers for virtually any question about the military, in general, or the war in Iraq, in particular, is not easy. Finding exact answers is next to impossible. Even for what one might think are the most basic of questions—how many civilians have we killed in this war?—one comes up against a great degree of uncertainty. For instance, only in January 2008, did we get a report from the World Health Organization (WHO), with the help of the Iraqi government, setting the number of Iraqi civilians killed in the war at what seems the ridiculously low figure of 151,000. These numbers count only the first three years of the war, but we had to wait six years to get even that data.[6] The Associated Press makes the point that many people risked their lives going door to door, in villages across the country, to conduct their interviews. At least one statistician from the WHO lost his life in the process.

Epidemiologists at the Bloomberg School of Public Health at Johns Hopkins University, along with a team of Iraqi physicians, conduced a national cross-sectional cluster sample survey of mortality in Iraq in 2003. Their study concluded that the number of "excess Iraqi deaths as a consequence of war" had reached 655,000. They published their results in the British medical journal *The Lancet* in October 2006. According to the study's authors, between May 2003 and June 2008, 50 percent of Iraqi children under fifteen years of age were killed by coalition air strikes.

The website *Unknown News* set the number of deaths at over 688,000, as of December 10, 2008. And the well-respected British group, Opinion Research Business Survey, calculated the number of civilian deaths, as of October 2006, at a low of 733,158 to a high of 1,446,063. The website *Information Clearing House*, which has done a remarkable job reporting the news all through the war in Iraq, lists, as of January 2009, the civilian death count at 1,297,997.

Because it adheres to a strict policy of not keeping tally of civilian deaths, we will not learn the number from the United States military. Or, as General Tommy Franks so eloquently put it, when asked about civilian deaths in Iraq: "We don't do body counts." Franks' line is true, except, of course, when it comes to Americans. In fact, we know the exact number of deaths and casualties for American GIs, as well as the death counts for all the members of the coalition forces.

All of which means, in the end, that we will probably never learn the answer to what should be, certainly, one of the most crucial and fundamental questions: In pursuing our wars in Iraq and Afghanistan, how many civilians have we killed? I do not expect to know their names, but I do expect to know the number. That we do not know the answer to that question—and yet do know the precise figures for the stock market each and every day, for the dollar amount of the bank bailouts—says a great deal, I believe, about the arrogance and disregard that all wars engender for all living things. It speaks loudly to the way we first denigrate, say, Iraqis into rag-heads, jihadis, sand-niggers, camel-jockeys—into the enemy—making it so much easier, finally, to toss them into that gross and euphemistic category, civilian body counts.

I believe every American, like it or not, should know that horrific death number, but once more, the truth passes us by. I have come to know intimately the meaning of that phrase my parents threw at me when I was a kid and they wanted to keep me in the dark. "That's a military secret," they would say to me. If that did not work, they resorted to saying, "You're much too young" or "I'll tell you when you're older." Well, now I am older, and here again I have that awful feeling

that my elders find it much too dangerous—much too compromising and revealing—to let me in on the truth.

The military keeps almost every fact under wraps, and will not give up much. The blind man's scramble to uncover the truth devolves into an insidious and stupid chain of reactions. Publish what you have gleaned from some Internet source on the conduct of the war, for instance, and military experts will quickly pounce and promote you on every right-wing blog as a know-nothing idiot, or worse yet, a traitor. Even those who support the military less passionately rule out any chance for cooperative work. They generally hold to a tough-guy's attitude of American might and right that precludes any prospect for such a communal effort. That's just the way it is, buddy, so love it or leave it.

On conservative blogs, one finds much the same attitude. Just try to figure out what's going on. I dare you! And that spirit can take an even nastier turn once the blogger detects even the slightest criticism of the United States military. The Pentagon has become one massive secret order: the Masonic Lodge of American culture. Only those who have been carefully screened—for the right color, the right schools, the right family and friends, the right political leanings—can gain entrance. And those who know the secret language and learn the secret handshake keep their information oh so well guarded.

To determine even something as straightforward as the exact number of Americans in uniform, on active duty, in Iraq, turns out to be confusing and complicated. The so-called "surge" muddied the issue even more, what with various stop-orders and early-rotation orders in place, shortened training-periods, National Guard call-ups, along with requests by field generals for thousands more Military Police and support battalions. To say nothing of civilian contractors, most of whom assume their jobs superbly well-armed, well-armored, and ready to declare as the enemy anything that moves or mouths off. Some critics point out that even the Pentagon, itself, may not be able to provide precise numbers or answers for some of the questions I raise in this essay.

Who, then, does know the answers, one immediately asks? As odd as it may seem, the Pentagon may be just too huge, too segmented and secretive for any one person to know—from the field commanders, on up through the generals, to the Secretary of Defense himself. And the top man, the commander-in-chief, well, the last one seemed thoroughly indifferent to details, facts, and especially to analysis. Reading tired him. A cluttered desk bothered him. A welter of details confused him. Complexity baffled. He called himself consistent and the decider; critics called him stubborn and the bumbler.

For all those reasons, I intend this piece as an *essay*, in the word's original sense—a "trial," an "attempt," and an "excursion," in trying to frame the right questions and trying to root around for the correct answers. Montaigne in the late-sixteenth century invented the genre we call the essay. To remind him of the method of thinking and writing peculiar to the form, he wore a medallion around his neck. On one side of it he had inscribed, "What do I know?," and on the other a question mark. In that tradition, I ask you to think of this essay as a protracted question mark, and to consider that question mark as a hook, with which I want to corral a good many people into pondering something that they may not have thought of before: the crisis of the military and pollution.

I admit at the outset that I have a rough but informed answer to my central question: How much does the military contribute to worldwide pollution and thus to global warming? But, even without precise answers, I can report that the numbers, in terms of greenhouse gases, stagger the imagination. Should I have a more precise answer? I think so, if for no other reason than that—besides the fact that, as a taxpayer, I, along with hundreds of millions of other Americans, help pay the enormous bill for our military adventures—the stakes are so incredibly high, which is no less than the continuing life of the planet itself. As little as ten years ago, that phrase, "the life of the planet," might have sounded like hyperbole. Today, because of the immanent crisis of global warming, those words have taken on a remarkably

frightening reality. In a very real way, then, I am suggesting that the military holds our fate in its vise-like grip.

Is it possible for any average citizen to get hold of that kind of precision? I do not think so, not without a room full of experts on matters military, political, climatological, scientific, and strategic. I hope that at some time such a meeting of informed people might in fact take place, so that the truth might be uncovered and made public. For even my limited research leads me to believe that we cannot as a people endure on this planet while still having the option of full-scale war to fall back on. We must eliminate the possibility of war—for us, and, as I hope to show, for the rest of the developing countries, like China, India, and Russia, as well.

I need to add one final comment about my research. After living in this country for more than fifty years, and after reading enough American history, one develops a nose for the truth. It is not hard to acquire. One learns to sniff out the villains. They may change their names over time, but their functions remain precisely the same. Doctor Martin Luther King Jr. could smell that foul odor better than most folks. Of course, a black person knows the truth of the nation in a way and in a degree that no white person ever could. More than forty years ago, on August 16, 1967, just a few short months before his assassination, King delivered a talk entitled "Where Do We Go From Here?" In that talk, in which King castigates America for bombing the people of Vietnam, he spoke the magic word that would lead anyone to understand the goal and desire of American capital. He uttered the tiny word "oil." From that word, *oil*, he pointed out, flows our domestic and foreign policy. Here is King, then, in 1967 (notice that, over those forty years, little if anything has changed):

> I want to say to you as I move to my conclusion, as we talk about Where do we go from here, that we honestly face the fact that the movement must address itself to the question of restructuring the whole of American society. There are forty million poor people here. And one day we must ask the question, Why are there forty million poor people in America? And when you begin to ask that question,

> you are raising questions about the economic system, about a broader distribution of wealth. When you ask that question, you begin to question the capitalistic economy. And I'm simply saying that more and more, we've got to begin to ask questions about the whole society. We are called upon to help the discouraged beggars in life's marketplace. But one day we must come to see that an edifice which produces beggars needs restructuring. It means that questions must be raised. You see, my friends, when you deal with this, you begin to ask the question, Who owns the oil?[7]

"Who owns the oil?" I find it interesting that King did not give his audience an outright answer to that question. Did he, however, ask the right question? Asking the right question can, at times, be more important than answering an irrelevant question. I am fairly certain that, without uttering the exact words, he did in fact answer the question, because, as I said, only four short months later, an assassin's bullet silenced him. So King left it to us, to each one of us, to answer the question, which should lead us, of course, to think not just about oil, but also about control and power, imperial might, and the perpetuation of that might at any cost, including full-scale war. To try to answer the question is to understand why this country consumes so much oil, and oil's importance in maintaining a late-capital economy.

Thinking about oil, one quickly runs across the association between "national security" and something called "energy security," two concepts linked more than sixty years ago by President Roosevelt. In 1945, Roosevelt agreed to protect the Saudi Royal Family in exchange for access to oil. President Carter solidified the agreement, saying very firmly in his 1980 State of the Union address that any attempt to cut that flow to the United States would be corrected "by any means necessary, including military force." To show that he meant business President Carter created the Rapid Deployment Joint Task Force, designed to deliver military strikes in the area of the Persian Gulf. Ronald Reagan prepared for a much more powerful military attack in the region by turning the Joint Task Force into a full-scale combat

organization known as the U.S. Central Command (CENTCOM
Michael T. Klare, Professor of Peace and World Security Studie
Hampshire College, says that the US military "has come to serve as
global oil protection service, guarding pipelines, refineries, and load
ing facilities in the Middle East and elsewhere."[8]

In this context, remember that upon their arrival in Baghdad,
US troops immediately seized and protected the Oil Ministry
Headquarters, while turning their backs on looting in the schools,
hospitals, and museums. The supreme irony hits one smack in the
face: the very real possibility that we are fighting this seemingly end-
less war in Iraq—destroying the people, their will, their heritage, his-
tory, and the very land they live off of—so that we can procure more
and more oil. To reach that goal of more oil, the military consumes
enormous amounts of fuel and, in turn, spews into the atmosphere
more and more greenhouse gases, along with other more lethal kinds
of pollution. Such a self-defeating strategy ranks up there on the stu-
pidity scale with the 50s nuclear deterrent policy that went by the apt
acronym, MAD, Mutually Assured Deterrence, in which each side
tried to stockpile as many nuclear missiles as possible. To start a war
was to end the world, the argument went, making for an even crazier
and endless scramble for each side to acquire more and more weapons
of mass destruction.

And so with King's magic word in mind, let me return to the prob-
lem at hand, troop levels, attempting to address that question now
with some specificity. In August 2006, President Bush reported that
the number of troops in Iraq hovered somewhere between 140,000 and
160,000. Five months later, on January 10, 2007, Bush as command-
er-in-chief announced his new strategy: to supplement what he now
said were the approximately 130,000 troops in Iraq with an additional
21,500. His projected supplement finally exceeded 35,000, with another
12,000 National Guard soldiers, deployed in June 2007, on top of that
number.[9] That totals roughly 177,000 GIs, but who really knows what
the actual number was, or what it finally turned out to be? General
David Petraeus, the top military-commander in Iraq during the surge,

promised the American people that they would know the exact figure by the end of May 2007. That date came and went, and Petraeus never revealed the magic number. Add to that 177,000, the troops in what the Pentagon commonly refers to as the "War Theater"—that is, Iraq and its neighboring countries—and that number increases by perhaps another 100,000, to a whopping 277,000.[10] On the campaign trail, even John McCain, a stout military man, could not get correct the number of troops in Iraq, setting the number around 130,000, or what he called pre-surge levels. Obama tried to correct him, but muffed it, as well, opting for the figure of 155,000 troops.[11]

That's the number of troops in Iraq. What about all our men and women in uniform? What's that number? The Congressional Research Service, quoting the Department of Defense's Contingency Tracking System, put the total deployment well past that figure—at 260,000.[12] Chalmers Johnson argues for a much higher total number. He gets there by first taking up the number of military bases. Citing the DoD's Base Structure Report, which itemizes and domestic military real estate, Johnson points out that, for the fiscal year ending 2003, the Pentagon owned or rented 702 bases in about 130 foreign countries. (Johnson also points out that the military, as he emphasizes it, "HAS another 6,000 bases in the United States and its territories.")[13]

These numbers, as large as they may appear, do not, as Johnson makes clear, include the bases that American forces currently occupy globally. The Base Report, for instance, does not mention garrisons in Kosovo, Afghanistan, Iraq, Israel, Kuwait, Kyrgyzstan, Qatar, and Uzbekistan. Johnson reaches this astonishing conclusion: "If there was an honest count, the actual size of our military empire would probably top 1,000 different bases in other people's countries, but no one—possibly even the Pentagon—knows the exact number for sure, although it has been distinctly on the rise in recent years."[14] Johnson rightly calls these bases America's colonies.

Indeed, for fiscal 2005, Johnson fixes the figure for overseas bases at 737, in the same number of foreign countries. (For fiscal 2007, the

number rose to 823 overseas bases, and 86 in our territories.) Johnson maintains that, to determine the exact number of troops and equipment, we must add in the more than 500,000 soldiers, dependents, technicians, and civilian contractors, along with their rolling and flying stock that the United States has stationed at those bases in those foreign countries. According to Base Structure Report for 2005, the actual number of US military personnel—including those in the states—worldwide amounts to the following: 1,840,062 on active duty, supported by 473,306 DoD civil service employees, and 203,327 local hires. The actual number of personnel on active duty, including Afghanistan, in 2008 and 2009 easily exceeds the Pentagon's stated number of 1.4 or 1.5 million, to 2.5 million or perhaps even more.[15]

According to the Pentagon, our overseas bases contain 32,337 barracks, hangars, hospitals, and other buildings, which it owns, and another 16,527 that it leases or rents. The military occupies 687,347 acres overseas, and 29,819,492 acres worldwide—a total of some 30 million acres—making the Pentagon the world's largest landlord. To give some comparison here about those numbers, the Arctic Refuge began in 1923 with the United States Navy establishing Petroleum Reserve No. 4 in Northwest Alaska to ensure a continuing supply of oil for national security needs. The area totaled 23 million acres, 7 million acres less than what the military currently dominates overseas. Yellowstone Park has a bit over 2 million acres; Yosemite Park a little over 760,000 acres.

In the middle of his analysis of our military bases overseas, Chalmers Johnson adds this wonderfully wry observation: "Interestingly enough, the thirty-eight large and medium-sized American facilities spread around the globe in 2005—mostly air and naval bases for our bombers and fleets—almost exactly equals Britain's thirty-six naval bases and army garrisons at its imperial zenith in 1898. The Roman Empire at its height in 117 AD required thirty-seven major bases to police its realm from Britannia to Egypt, from Hispania to Armenia. Perhaps the optimum number of major citadels and fortresses for an imperialist aspiring to dominate the world is somewhere between

thirty-five and forty." America is well situated to take over—everything.[16] Of course, these bases manufacture their own heavy amounts of pollution, a subject I take up in a later section of this essay.

But here, as with nearly every other subject that has to do with the military, the phrase "the bottom line," empties itself of any real meaning, for the military knows no bottom line. Try as hard as one might, a person cannot find a solid baseline for virtually any military subject, because in great part such certainty, as I mentioned earlier, does not exist. How much fuel does the military consume? No one knows for certain. Ten experts provide ten different answers; accounting practices within the branches of the military vary. The same levels of uncertainty hold for subjects like the numbers of vehicles, amount of munitions, and, as we have seen, for the heart of the military, the number of troops themselves.

And so when we say "the military" or "our sons and daughters in uniform" or "those in harm's way," these phrases point to no reality with any specificity. We pay for a military, but we have no idea of its size or scope or composition. We do not even know the places where they are stationed. As taxpayers, we own stock in a nefarious corporation that cooks its books until they are well done. When they get audited, they typically tell the auditors to go to hell.

Chalmers Johnson makes the point over and over again that the Pentagon itself may not know the answers to many of the questions I have raised so far. We would not allow such behavior in any other field or, dare I say, in any other profession. But then again it is exactly this kind of profligate waste and lack of accountability that has led to other recent disasters in this country, like the feeble attempt at restoring the lower wards in New Orleans following Hurricane Katrina, the greed in the unregulated financial markets, and the lost and forgotten people on our streets and behind bars in our jails and prisons. Very few people, if any, know the numbers of those homeless or those living in severe poverty in this country. But even if few people know, some people must care. And that number must grow. And hence this book.

I
POLLUTION: A SNAPSHOT

One question, and one question only, drives this essay: how much does the United States military add each year to worldwide pollution? To say it in a more pointed way: how much does the military contribute to that most dire and most imminent of crises, global warming? I am particularly interested in this question whenever the military ratchets up its presence, and that of course means the present moment, for, during times of war, the military's use of fossil fuel radically increases. In 1940, for example, the armed forces accounted for one percent of the nation's total energy consumption. Five years later, as World War II got underway, that number increased to twenty-nine percent.[17] And we have in the recent past declared war against at least two countries. We have tallied nearly eight years of war in Afghanistan, and six years in Iraq. That translates into nearly fourteen compound years of shooting, firing, dropping, exploding, and incinerating.

I have devoted the first part of this essay to the invasion, decimation, and subsequent occupation of Iraq. That was the war that at least captured the attention of some Americans for some time, which is to say for a time events in Iraq made the front page of a few of the country's major newspapers. Adding Afghanistan onto what I

have found obviously increases the numbers, particularly toward the middle months of 2008 and into 2009, when the Taliban stepped up its attacks in and around Kabul. I also limit myself to the United States military. I could have easily picked the Israeli military or the Russian military, but I live in this country. Its actions represent me; I aim at making change here. So I first want to determine just how much damage America has visited on the planet these past six years since "Shock and Awe" began at 10:15, the evening of March 19, 2003, when, according to some sources, 1,700 aircraft—bombers, fighters, and other warships—flew roughly 1,400 strike sorties on critical targets, and fired 504 cruise missiles, directly into the heart of Baghdad.[18]

Those are the raw numbers and, as we know only too well, numbers make abstract the gruesome reality of maiming and killing human beings. Here's a personal, graphic account of that first night from a reporter embedded with the 332nd Air Expeditionary Wing. Notice how, even in an eyewitness account, the writer cannot escape the tyranny of numbers. After describing the gore and the stench, the impulse kicks in to list. Even the word decimation has the idea of number buried in the word—"to kill every tenth person":

> The attack crafts are flying low altitude missions in support of the ground troops now penetrating Iraq, carrying a 30mm Gatling gun that's capable of destroying enemy tanks by firing at the rate of 3,900 rounds per minute and dropping up to 16,000 pounds of bombs.
>
> On Friday evening, the first night of the so-called "shock and awe" phase of the war, 150 sorties from this base alone had been planned. But additional Iraqi missile launches and ground intelligence increased that effort to 250 sorties. By late Friday night, 2,000 coalition-wide sorties struck 1,000 different targets. For this base's part, the 250 sorties were the biggest launch it has executed for the duration of Operation Southern Watch and Operation Iraqi Freedom, but a bigger night was expected Saturday.

> "Every airplane was associated with the 'shock and awe' posture across the entire field," said 332nd *Wing* Commander Col. Cesar Rodriguez. "North, south, east, and west, airpower sorties were delivered to generate the total 'shock and awe' and to continue to isolate the regime from its field of forces."
>
> As Marines continued to battle in Basra, ground troops called in intelligence to the squadron operations center here, and a series of close-air-support sorties of A-10s, British Harriers, marine F-18s and F-16s responded.[19]

I am thrown back on the same basic urge, left to wonder just how many total rounds those planes actually fired. No one is telling: the numbers for munitions constitute one of the most carefully guarded and elusive of all military secrets. A spokesman for USCENTAF (United States Central Command, Air Force), in an e-mail response from a reporter to that very question—How many rounds did the military fire?—makes the point quite emphatically: "WE DO NOT REPORT CANNON ROUNDS." That spokesman's superior, Lt. Col. Jon Kennedy, followed that message with another, perhaps even testier one: "Glad to see you appreciate the tremendous efforts [my subordinate] has already expended on you. Trust me, it's probably much more significant than the relentless pursuit of the number of cannon rounds."[20] Whatever the number, it has to astronomic, and, for reasons I will talk about momentarily, absolutely lethal.

Some numbers the military does let us in on. From March 19 to April 9, 2003, for instance, according to the Air Force's own website, "the Air Force [flew] more than 30,000 sorties, including 12,000 strike sorties, and dropped more than 21,300 munitions, 70 percent of which were precision-guided."[21] Before the start of the war, Harlan Ullman, one of the authors of the military strategy originally known as "rapid dominance" and which later became known as "shock and awe," told a CBS reporter what he hoped for in those first two days. He said he expected the United States military to deliver eight hundred Tomahawk cruise missiles—one every four minutes, day and

night, for the first forty-eight hours. Those 800 cruise missiles—each one weighing close to 3,000 pounds—add up to a whopping total of 1,200 tons, or 2,400,000 pounds of explosives![22]

How can we possibly fathom that number—2,400,000 pounds of explosives? And what does that term actually mean that we use so easily and with such facility—an explosive? What actually explodes? What lives? Who dies? Certainly, no one really knows like Iraqi families, who carry out their lives, or try to, directly beneath bombs that fall on their homes, or in the midst of IEDs (Improvised Explosive Devices) that blow up in their markets or mosques or schools. And for those who survive, many of them maimed and wounded, what kinds of chemicals do they find themselves breathing? What sort of poisoned water do they find themselves drinking? How much contaminated produce do they find themselves eating?

To answer these questions, we must consider more than greenhouse gases and the wholesale polluting of the atmosphere. We must concentrate on the earth itself, the grit and dirt upon which people walk, on which kids play, and in which farmers grow their fruits and vegetables. We have to think about two of the mightiest and most sacred rivers of the world—the Tigris and the Euphrates—and the fish that swim in them, or used to. And so I choose to look at the pollution of the land, the animals, the rivers, lakes, and the oceans, by the United States military.

Mesopotamia holds the distinction as one of the birthplaces of literacy in the world. In what we now call modern Iraq, archeologists uncovered a series of Sumerian tablets, incised with pictographs that date from around 3500 BCE. If only for that reason, historians have named the area "the cradle of civilization." Over the centuries, as one might imagine, the country has assembled hundreds of thousands of manuscripts and books. In the National Library of Iraq, the equivalent of our Library of Congress, over 500,000 printed books and serials went up in flames during the first weeks of the invasion; the Library considered 5,000 of those as rare. Iraq's National Archives, which contained documents dating from the Ottoman period, re-

ceived heavy bombing damage the first weeks of the war, and lost a good deal of its contents. The Al-Awqaf Library, part of the Ministry of Religious Affairs, lost over 5,000 Islamic manuscripts to bombing and looting.[23]

According to one newspaper account, "many irreplaceable documents, photographs, maps and books—some centuries old—were either destroyed in the fighting or were stolen in the rampant looting that followed. A vital part of Iraq's culture seems to have disappeared forever."[24] The director-general of the library, Saad Iskander, lamented that the "library lost 60 percent of our state records and documents—they were either burned or damaged by water." He went to say that the Americans wiped out a big part of Iraqi culture in just the first few days of their occupation.[25]

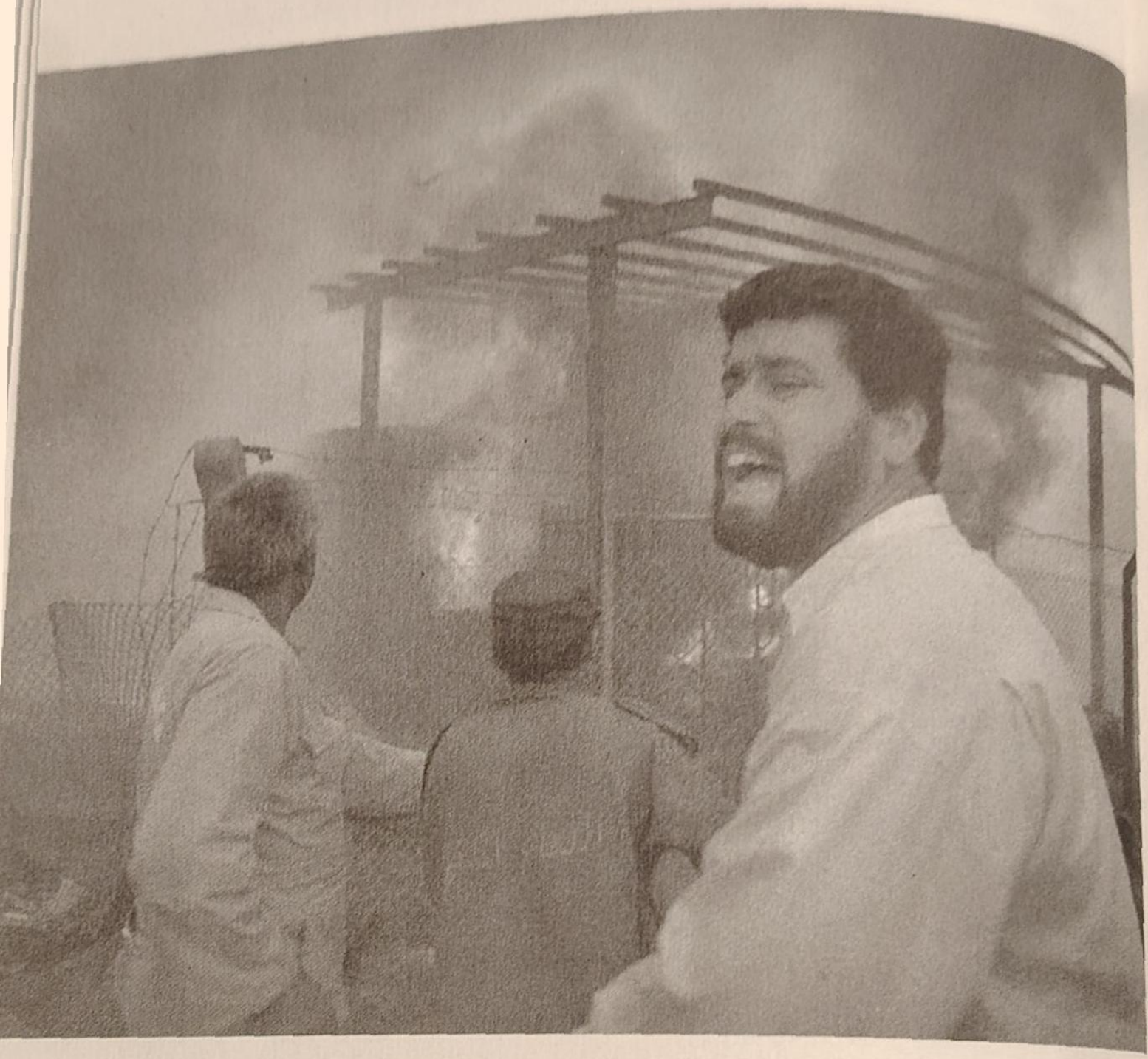
I do not know how to count such destruction of centuries of manuscripts, books, and religious artifacts, in my calculation of pollution. Does the near wholesale eradication of a culture's founding heritage, literacy itself, along with its documents constitute a form of pollution, or at the very least, a form of severe and certain fallout? Do we have any category in the imagination for the wholesale eradication of a nation's history? What would we call such a monstrous act at such a base level? Does the destruction of the heart of literacy have repercussions on how other peoples in other countries now look at the idea of literacy? How could anyone possibly look at such acts squarely and deliberately and say no, this is all necessary if we are to win the hearts and minds of the people. A tyrant lived here and we are doing it for the people's own good, and someday they will come to see just that and thank us all. Here is another instance of that twisted logic of war where we use up oil to secure it. In our bombing, we destroy the Iraqis and their country in order to save them from their awful fate. This is utter madness.

Besides the birthplace of literacy, for many historians, Mesopotamia also serves as the place where agriculture began some thirteen centuries ago, and hence its name, the Fertile Crescent. Recall, the US invasion of Iraq started in the spring of 2003, on March 19th. Evidence

suggests that military planners picked the time of the invasion with some heightened sense of perverted care. At that same time, the middle of March, Iraqi farmers typically harvest their barley and wheat fields in the Tigris River valley and plant their vegetables in the south. As Jeffrey St. Clair, one of the editors of *CounterPunch*, points out, in both 1991 and in 2003, "US bombing raids targeted cattle feed lots, poultry farms, fertilizer warehouses, pumping stations, irrigation systems, duel depots and pesticide factories—the very infrastructure of Iraqi agriculture." (Jeffrey St. Clair, "The Rat in the Grain—Dahn Amstutz and the Looting of Iraqi Agriculture, *CounterPunch*, July 4, 2003. See also Daniel Stone, "The Assault on Iraqi Agriculture—US Agribusiness Targets the Fertile Crescent, *Coastal Post*, August 2006.) In the spring of 2003, Americans made it impossible for farmers to harvest their grain before it rotted in the fields. St. Clair describes the fallout of our bombing as the slow starvation of a people: "The banks, which provide credit and cash, have been looted, irrigation systems destroyed, road travel restricted, markets closed, warehouses and grain silos pillaged...Iraqi farmers need more than eight million gallons of diesel fuel to power combines and harvesters. But most of the fuel depots were incinerated by US bombing strikes."

Again, I am at a loss to name this kind of pollution, where the fuel goes up in flames, and the population finds itself crippled by starvation. But in Iraq even this kind of pollution stands beside the point. For we have to confront more than ordinary pollution—if such a phrase is not in itself a contradiction—or even more than extraordinary pollution, and turn to the most grossly shocking form of pollution—radiation poisoning. A report from the United Nations Environment Program, dated 2004, estimates that at least four million pounds of low-level but radioactive dust, the residue from spent munitions made with depleted uranium, now covers a good portion of the deserts and cities of Iraq. Which means that a good deal of that country now hums with low-level radiation. How could that have happened? Or, to say it another way, how did we allow that to happen? In this country, why do we have to uncover this kind of horren-

dous information from blogs and websites rather than from the major newspapers, which, in their rush to support the war, either neglected or refused outright to cover such unspeakable acts?[26]



II
HOW MUCH FUEL?

I begin this part of the story with the combat vehicles, planes, and helicopters, and then only with a selection of them. The vital statistics for almost all armament—their type and number—remain highly classified. By one count, the United States Armed Forces currently commands the deserts and the neighborhoods of Iraq with about 30,000 vehicles.[27] According to its own figures, the DoD inventory of fleet vehicles worldwide—including passenger cars, buses, light trucks, and so on—totals 187,493, 13 percent of which it houses overseas.[28] The Army and Marine Corps own and operate their own tactical wheeled vehicles, such as 140,000 High-Mobility Multipurpose Wheeled Vehicles (the HMMWV, or HUMVEE). The Army also operates over 4,000 combat vehicles and several hundred fixed wing aircraft. Except for eighty nuclear submarines and aircraft carriers, the entire military fleet runs on oil.[29]

Armor often means the difference between living and dying, and so the Army relies on heavily armored machines like the HMMWV (M1114) and its seventeen variations, including the Guardian Armored Security Vehicle M1117 (popular with MPs), the Cougar HEV Armored Truck, the LAV (light armored vehicle), the ICV (infantry carrier vehicle), the Stryker troop carrier, the High Mobility

Multi-Purpose Wheeled Vehicle M1151, the Bradley Fighting Vehicle, the M-1 Abrams tank, and a behemoth called the Mine-Resistant Ambush-Protective vehicle, a thirty-ton armored bus for ferrying VIPs, and popularly known as the Rhino Runner. Military brass covet the Rhino Runner, for it holds the distinction as the most heavily armored, safest vehicle ever manufactured.[30]

I list here but a few of the vehicles in the Army's inventory. The military uses scores of other, more obscure tracked- and wheeled-vehicles as well. As you can imagine, such armored vehicles do not sit lightly on the ground. A United Nations Environment Program report about the first Gulf War points to the damage inflicted by seventy-ton tanks like the M-1 Abrams on the ecology of the desert: "Approximately fifty percent of Kuwait's land area has had its fragile soil surface destroyed as scores of tanks moved out of that country each day and headed for Iraq." Once the surface of the desert has broken apart, the report goes on, the wind has an easier job of eroding even more land mass.[31]

The military—the Army, Navy, and Air Force—leads the world, of course, in its wide range of flying machines, including fixed-wing attack jets, transport planes, helicopters, stealth bombers, and much more. Based on data provided by CENTAF, I count forty-three different types of fighter planes, eleven different kinds of attack planes, thirteen kinds of bombers, sixteen kinds of cargo planes, and nine different kinds of helicopters—all told, ninety-two different kinds of aircraft.[32]

Military brass also operates its own private airline, known as the Air Mobility Command or AMC. The Pentagon prefers to keep these planes, for the most part, off the record. The AMC consists of a fleet of long-range C-17 Globemasters, C-5 Galaxies, C-141 Starlifters, KC-135 Stratotankers, KC-10 Extenders, and C-9 Nightingales. As an additional perk, for generals and admirals, the military has on hand, for their private use, seventy-one Lear jets, thirteen Gulfstream IIIs, and seventeen Cessna Citation luxury jets.

These armored vehicles, planes, and luxury planes consume close to two million reported gallons of oil every day. As I have said, we are using up at an alarming rate the very commodity we have sworn to protect.[33] For Doctor King, recall, oil constitutes the full-time business of America in general. It should make sense to us, then, that the business of the military, both in times of peace and war, likewise, has to be oil itself. In the end, the United States must have access to as much oil as possible—it would love to own it all—to maintain its position as the most prosperous nation in the world. Indeed, since capitalism requires an ever-expanding market, the country must have more and more oil each year. The nation's appetite grows in concert with the market.

Of the Army's top ten gas-guzzlers, only the M-1 Abrams tank and the Apache helicopter are combat vehicles. As for the rest, ironically, the military needs most of these fuel-famished vehicles—along with a good number of its troops—for re-supplying its vast fleet of fuel-dependent combat vehicles and fighter planes. These support, or non-tactical, vehicles consume over half the fuel in the battlefield.[34] Fuel constitutes the lifeblood of these vehicles, and they require it in astonishing amounts, consume it with astonishing speed, and demand it with astonishing rapidity. To complicate things even more, the military currently uses fourteen different kinds of fuel products, from gasoline and diesel to a range of highly toxic jet fuels, either kerosene or naphtha-derived. Jet fuel—JP-8—accounts for more than fifty percent of total DoD fuel consumption.[35]

No wonder, then, that *The Energy Bulletin*, a clearing house for information regarding the peak global energy supply, for May 2007, can list the following astonishing facts:

> The US military is the largest consumer of energy in the world.... The DoD's total primary energy consumption in fiscal year 2006 was 1 quadrillion Btu [1,000,000,000,000,000]. It corresponds to only 1 percent of total energy consumption in USA. For those of you who think this is not much...Nigeria, with a population of more than 140 million, consumes as much energy as the US military. The DoD

per capita consumption (524 trillion Btu) is 10 times more than per capita energy consumption than China, or 30 times more than that of Africa.

The Energy Bulletin bases its numbers on a total of 1.4 million active duty military and civilian personnel.[36]

The Pentagon is the largest single consumer of petroleum in the world, using enough oil in one year to run all of the transit systems in the United States for the next fourteen to twenty-two years. It is not, of course, just that our own military consumes inconceivable amounts of gasoline. The military also consumes one quarter of the world's jet fuel. A class at the University of Wisconsin, "Iraq and Our Energy Future," taught by Professor Zoltan Grossman, uncovered the following shocking bits of data: The world's militaries combined are responsible for an astonishing two-thirds of the ozone-depleting, greenhouse gas, chlorofluorocarbon, or CFC-113, released into the atmosphere. CFCs are highly persistent and highly toxic, and at one moment tore a hole in the ozone layer as large, in terms of square miles, as the Arctic itself. The Army and Air Force use CFC-113 as a cleaning solvent for tanks and airplanes. Doctor Helen Caldicott, the physician and anti-nuclear activist who started Physicians for Social Responsibility, believes the problem extends far beyond simple cleaning solvents. She indicts the military for releasing chlorofluorocarbons into the atmosphere during the process of enriching uranium for munitions.[37]

The one thing we do know with some certainty about the military is that fuel accounts for more than three-quarters of the Department of Defense's energy consumption. According to *The Energy Bulletin*, the Defense Energy Support Center (DESC), the agency charged with procuring all fuel products for all branches of the military, "purchases more light refined petroleum product that any other single organization or country in the world."[38] It should thus come as no surprise that the military also ranks as the largest single polluter of any single agency or organization in the world. Only three countries con-

sume more oil per capita than the Department of Defense: Gibraltar, Netherland Antilles, and Singapore.[39] For just the first three weeks of combat in Iraq, the Army calculated that its branch alone would require more than 40 million gallons of fuel, an amount equivalent to the total gasoline used by all Allied Forces combined during the four years of World War I.[40] Or the amount of fuel that approximately 80,000 people burn through in an entire year's worth of driving.

For fiscal year 1999, the DESC spent its yearly budget of 3.5 billion dollars for 110 million barrels of petroleum products. That represents such a colossal amount of fuel, I feel compelled to let the DESC boast about its own numbers: "That's enough fuel for 1,000 cars to drive around the world 4,620 times—or 115.5 trillion miles." But, as staggering as that figure might sound, the DoD outdid itself in fiscal 2004. That year, the DESC almost doubled its purchases—by that time, we had two wars to support—spending 8.5 billion dollars for 144 million barrels of petroleum product. Since each barrel yields about 19.5 gallons of fuel, 144 million barrels of petroleum product equals nearly 2.8 billion gallons of gasoline![41]

The United States Department of Transportation Statistical Records Office places the number of vehicles registered in this country at 62 million. According to the EPA, the average driver goes through 500 gallons of fuel a year, which means that sixty-two million vehicles, collectively, consume approximately 31 billion gallons of fuel for the year. The DoD's 2.8 billion gallons of fuel would keep almost ten percent of those vehicles, 5.6 million of them, running for the entire year.

The DESC's 144 million barrels of oil for the year averages out to about 395,000 barrels per day, almost as much as the daily energy consumption of Greece.[42] But those numbers do not, in the end, mean very much. While researching any military subject presents enormous difficulties for the layperson, the most convoluted and messy one surely must be fuel. Several major factors make it impossible to uncover actual numbers for fuel consumption, so that the number of barrels a day that the military uses—a number deliberately

well hidden—has to be a good deal higher than the reported 395,000 barrels a day—much closer to 500,000 barrels per day, and, as I want to show, probably much higher than that—in fact, nearly triple that figure, to one million barrels a day or more.

To begin, the DoD provides no official accounting for the amount of oil the military consumes in garrisons and bases abroad. And that figure may be substantial. Tom Cutler, former head of NATO's Petroleum Planning Committee, says that as much as "one-third of US military consumption occurs outside US territorial boundaries." The Pentagon does not count that fuel in its published figure of 144 million barrels. If Cutler is anywhere near accurate, we need to add at least another 45 or 50 million barrels per year to the total, or around 150,000 barrels a day. That would immediately raise the daily military consumption to around 550,000 barrels a day.

There's more. None of the official Pentagon figures include fuel that the military obtains at no cost overseas. And, again, that number may be fairly substantial. Kuwait has been the largest supplier of such fuel, providing US troops with free fuel from the start of the Gulf War in 2003. According to an article in *Agence France-Presse*, for March 17, 2000, "Kuwait supplied the United States military with fuel at no cost." But after two years, the Kuwaitis began to rethink their on-going largesse and, when America ousted Saddam Hussein, they decided that they should get paid for their fuel.[43] The London-based pan-Arab newspaper, *Al-Hayat*, reported that, in March 2005, the Kuwaiti government demanded a payment of 500 million dollars for the fuel it had supplied to the US Army from March 2003 to fall 2005. The Emirate had settled on a preferential price for the United States of twenty-one dollars a barrel.

No matter the discount, then Secretary of Defense, Donald Rumsfeld, wrote an indignant letter back to Kuwaiti's energy minister, Sheik Ahmed Fahd Al Ahmed Sabah. Rumsfeld made it clear that Washington had liberated the Emirate from Iraqi occupation in 1991 and now, because Kuwait enjoys a fiscal surplus, he saw no need for Kuwait to demand any payment for a single drop of that fuel.[44]

If the Kuwaiti numbers are anywhere near correct—and Rumsfeld never disputes those figures in his letter—we need to add an additional 75,000 barrels a day to our running total of 550,000 barrels.[45] The number then grows from the official 395,000 or 400,000 barrels a day, to roughly 625,000 barrels a day, already an increase of over 50 percent. No military source has revealed whether Kuwait is continuing to supply that free fuel or not, or even if it now supplies fuel at a cost, and how much it supplies. One can only wonder. And the chase for answers and accuracy goes on.

For the DoD's numbers also omit fuel consumed by independent contractors, by leased and privatized facilities, and by all the rented and leased fleet vehicles. What shall we add for all those extras to the stated number? Conservatively, perhaps, another 100,000 or 150,000 barrels a day? That would now bring us to 725,000 or more barrels a day. Given that each barrel yields 19.5 gallons, all the branches of the military consume on the order of 14.5 million gallons of fuel every day. At this point, its fuel consumption would rank it with the daily use of nations like Singapore, Australia, Thailand, and the Netherlands. (Australia has a population of 20.5 million people, the Netherlands 26.6 million and Thailand 61.5 million people. Remember, the military has a stated 1.4 or 1.5 million soldiers on active duty.) And I have not yet included the most significant and probably largest omission that prevents anyone from finding out the military's total number of barrels.

The Pentagon employs a different accounting practice for the fuel that the Navy uses when it operates in international waters, adding yet another level of murkiness to an already opaque problem. Indeed, no one outside the Pentagon, and maybe no one *inside* the Pentagon, can say with any certainty just how much fuel the Navy actually uses. Some critics of military fuel efficiency say that the Navy's figures may even be higher than the largest consumer of fuel of all the armed services: the Air Force.) For the Pentagon places the fuel it designates for consumption in international waters—that which the Navy pri-

marily uses in its ships on the open seas—in a separate category called International Bunker Fuel.

International Bunker Fuel—or more accurately called Bunker Oil—remains totally off the record, ghost stuff, as unidentified as the prisoners the United States keeps confined at Guantanamo Bay. I should note that even in the case of civilian commercial shipping, for the purposes of greenhouse emissions inventories, the United States subtracts data about International Bunker Fuel from its national totals. How large, then, is the military Bunker number? Who knows? My figure for the military of 725,000 or more barrels a day, which at the outset may have sounded extreme, could, in fact, turn out to be a quite conservative estimate. The final number might run as high as one million barrels a day, or close to half a billion barrels a year. I settle on that figure of one million as a safe, and even conservative, number.

Again, using the figure of 19.5 gallons of fuel that each barrel of oil yields, at a million barrels a day, the military would wind up using close to 20 million gallons of fuel each and every day. If that indeed turns out to be the case, the United States military would then rank in fuel consumption with countries like Indonesia, Iran, and Spain. Only fourteen countries, including the United States, would exceed those military numbers. It is truly an astonishing accomplishment, especially when one considers, once again, that the military has only about 1.5 million troops on active duty, and Iran has a population of 66 million, Indonesia a whopping 235 million.

The military is thus consuming fossil fuel out of proportion to nations 200 times its size. We have been doing this steadily for years and years. Surely, we do not think that the rest of the world does not notice. We should not be surprised that our country inspires deep feelings of envy, hatred, and even outright aggression. The former president told us that the extremists hate our democratic way of life. I think they hate our imperial way of life.

In the end, however, no military official, and no independent scholar seems to know the answer to what would seem like two

straightforward questions: How much fuel are we, American citizens, purchasing to keep the armed services running at full speed, and thus to keep 300 million Americans safe and secure? And, two, how much are we paying for that fuel? (Of course I am asking, how much greenhouse gases are we willing to pump into the atmosphere, around the world, for that so-called protection?) As for the first question, the most honest conclusion may come from one critical observer, who has followed the intricacies of military fuel consumption very closely, for a fairly long time: "The reality is that even the U.S. Department of Defense (DoD) does not know precisely where and how much energy it consumes."[46]

And for the second, but related, question—"How much do Americans pay for that fuel?"—we can say quite generally that military fuel does not come cheap. In 2002, at something called the Tactical Wheeled Vehicles Conference, General Paul Kern, head of the Army Materiel command, revealed that the actual cost of fuel, depending on how it got delivered, could range anywhere from a low of 1 dollar to a high of 400 dollars per gallon. The average, he allowed, hovered around an astonishing 300 dollars a gallon.[47]

III
"BIGGER, FASTER, AND MORE SOPHISTICATED WEAPONS": FUEL EFFICIENCY

Military vehicles have utterly no respect for CAFE (Corporate Average Fuel Economy) standards, or fuel standards of any kind. After all, we are at war; fuel economy is a luxury. But war or not, military vehicles exist in a world apart from conservation of any kind. One hears talk these days from military planners about the desire for more fuel-efficient vehicles and the need for alternative fuels. Think about what that actually means: a cleaner, more efficient way of killing human beings. As if moving from the single shot rifle to an automatic made for a better society. How bizarre to think about installing "an environmentally sensitive culture" inside the military. We might then boast to the Iraqis: Notice how little fuel we consumed to destroy your homeland. The reasoning is absurd.

The topic is, finally, of little real concern for the Pentagon. Indeed, the military refers to fuel consumption in terms of "gallons per mile," "gallons per minute," and "barrels per hour." One quickly realizes that military "assets," as the Pentagon likes to call its rolling arsenal, have to operate in a world all their own, free of restraints of any kind—both in the fuel they consume and the pollutants they exhaust. For example, the High Mobility Multi-Purpose Wheeled Vehicle, the Humvee, gets four miles per gallon. But that's amazingly fuel effi-

cient compared with the stalwart of all the fighting vehicles, the M-1 Abrams tank, which, according to the military's own spec sheets, gets .2 miles per gallon, or, stated another way, requires five gallons of fuel to cover a single mile. Just firing up the tank's turbine requires ten gallons of fuel. During battle, over ideal terrain, the Abrams can go through roughly 7 barrels, or 252 gallons—usually of JP-8 jet fuel—each and every hour (a barrel of oil yields more gallons of diesel and jet fuel than it does of regular gasoline). It takes nearly 500,000 gallons a day to supply an armored division of 348 tanks. The Army tries to keep its entire inventory of Abrams tanks up and running in Iraq—all 1,838 of them.

The Army's principle flying machine, the Apache helicopter, blows through fuel at an astonishing rate. Powered by two General Electric gas-turbine engines, each rated at 1,890-horsepower, the Apache gets about one-half mile to the gallon. Just 1 pair of Apache battalions in a single night's raid will consume about 60,000 gallons of jet fuel.[48]

Feeding the appetites of these voracious machines, with gasoline or diesel orkerosene, requires intricate logistical planning and support from some 2,000 trucks, a battery of computers, another 20,000 GIs, and, according to an Associated Press article for September 2007, as many as 180,000 workers under federal contracts, perhaps more contract workers, in fact, than soldiers.[49] Over thirty private security companies operate in Iraq, including the major ones like Blackwater USA, Triple Canopy; Kellogg, Brown & Root; DynCorp International; and the Vinnell Corporation. The largest of them, however, is not even American, but British, named the Aegis Defense Services. The Department of Defense awarded Aegis with the largest security catch up to that time, May 2004—"a massive $293 million, three-year contract."[50]

Many of the contract workers—especially those employed by Blackwater—served formerly as military Special Forces troops, such as Navy Seals and the Army's Delta Force. The Seals conduct their operations guided by the philosophy of "spray and pray"—shoot first and hope to God that you have hit the right target—a credo that

seems to underlie a good deal of the behavior of the mercenaries working for Blackwater USA. The company's CEO, Erik Prince, left a career appointment in the Seals to start what is now a billion-dollar federal contracting firm, Blackwater USA. After the uproar over some of his men who "sprayed" to death seventeen innocent Iraqis on September 16, 2007 in Baghdad, the *Wall Street Journal* reported that Erik Prince no longer cared about the security business. He intended, instead, to expand into a "full spectrum" defense contractor, the *Journal* went on, offering "one-stop shopping" for anything and everything the military might need, from unmanned planes to tanks and ammunition.[51]

The Navy uses an enormous amount of that fuel. The Navy's battleships consume sixty-eight barrels per hour. No match for its nonnuclear aircraft carriers, which burn approximately 134 barrels per hour.[52] Rear Admiral Eugene Carroll, Jr., retired from the US Navy and now part of the Center for Defense Information, a think-tank based in Washington, DC, served as the commander of the carrier the *USS Independence*. Talking about his ship, Carroll provided a picture of the staggering amounts of fuel that those huge vessels require. Keep in mind that the Independence weighs 81,000 tons fully loaded, and stretches almost 3.5 football fields in length. The ship gets its power from four 70,000 shp steam turbines.

In 1991, Admiral Carroll boasted that,

> while stationed off the coast of Vietnam, the ship [*USS Independence*] consumed 100,000 gallons of fuel a day. Every four days the *Independence* took on a million gallons of new fuel—half of which went to supply the carrier's jet aircraft. Steaming to the Persian Gulf in fourteen days, the Independence would consume more than two million gallons of fuel. Simply "standing by" in the Gulf, the carrier must still consume oil at a voracious pace in order to purify 380,000 gallons of fresh water daily and produce enough electricity to power the equivalent of a city of 40,000 people.

While the Navy decommissioned the forty-year-old *Independence* at the end of September 1998, Carroll's testimony offers some evidence of the almost unimaginable appetites of the Navy's huge aircraft carriers.[53]

According to the US Navy Official Website, as of November 2007, the Navy had 335,000 personnel on active duty, an inventory of 4,000 airplanes and helicopters, and most important, 285 combat and support ships.[54] The DoD keeps classified the number and kinds of vessels stationed in the Gulf. But, we do know that President Bush ordered the *USS Stennis* and the *USS Ronald Reagan* to the Gulf in January 2007 as part of the surge. He also sent a "strike group," led by the nuclear aircraft carrier the *USS Eisenhower*, along with a cruiser, a destroyer, a frigate, a submarine escort, and a supply ship.

Already sitting in the Gulf were ten other "Carrier Task Forces" built around the aircraft carriers *Kitty Hawk, Constellation, Enterprise, John F. Kennedy, Chester W. Nimitz, Carl Vinson, Theodore Roosevelt, George Washington, Harry S. Truman*, and the *Abraham Lincoln*."[55] On the subject of naval build-up, Chalmers Johnson reports that "to dominate the oceans and seas of the world, we are creating some thirteen naval task forces built around aircraft carriers whose names sum up our military heritage—*Kitty Hawk, Constellation, Enterprise, John F. Kennedy, Nimitz, Dwight D. Eisenhower, Carl Vinson, Theodore Roosevelt, Abraham Lincoln, George Washington, John C. Stennis, S. Truman*, and *Ronald Reagan*."

The *USS Abraham Lincoln*—familiar to us as the ship on whose deck President Bush declared to the nation, on May 2, 2003, his famous (or infamous) phrase, "Mission Accomplished"—remains in service, but the military keeps classified all the numbers about its fuel consumption. The *USS Lincoln* helped deliver the opening salvos and air strikes in Operation Iraqi Freedom. From March 2003 until mid-April of that same year, during its deployment in the Gulf, the Navy launched 16,500 sorties from its deck, and fired 1.6 million pounds of ordnance from its guns.[56]

Of all the branches, the Air Force, by every account, uses the most fuel.[57] In 2006, for instance, the Air Force consumed nearly half of the DoD supply, 2.6 billion gallons of jet fuel, the same amount of fuel US planes consumed during World War II from December 1941 to August 1945.[58] Any of the Air Force's large helicopters—the Sea Stallion, Super Stallion, Sea Dragon, or Pave Low III—suck up five gallons every mile. But that's nothing compared with the fighter planes. The F-4 Phantom Fighter uses 40 barrels of fuel per hour, or more than 1,600 gallons, each and every hour.[59] At peak thrust, the F-15 uses about 25 gallons per minute, or 1,580 gallons per hour; the F-16 Fighter Jet uses a bit more, 28 gallons per minute or 1,680 gallons per hour—as much fuel in that 1 hour as in 3years of driving for the average American!

Tom Cutler, whom we met earlier as head of NATO's Petroleum Advisory Committee, writing in the *Armed Forces Journal International* (Spring 2004) points out, that to reach supersonic speeds, a pilot must turn on the plane's afterburners, which can triple a jet's speed and increase fuel consumption twenty times. With its afterburners kicked in, for example, "the F-15 torches fuel at the astounding rate off 4 gallons per second—14,400 gallons per hour. And as the military opts for bigger, faster, and more sophisticated weapons, fuel efficiency continues to plummet."[60]

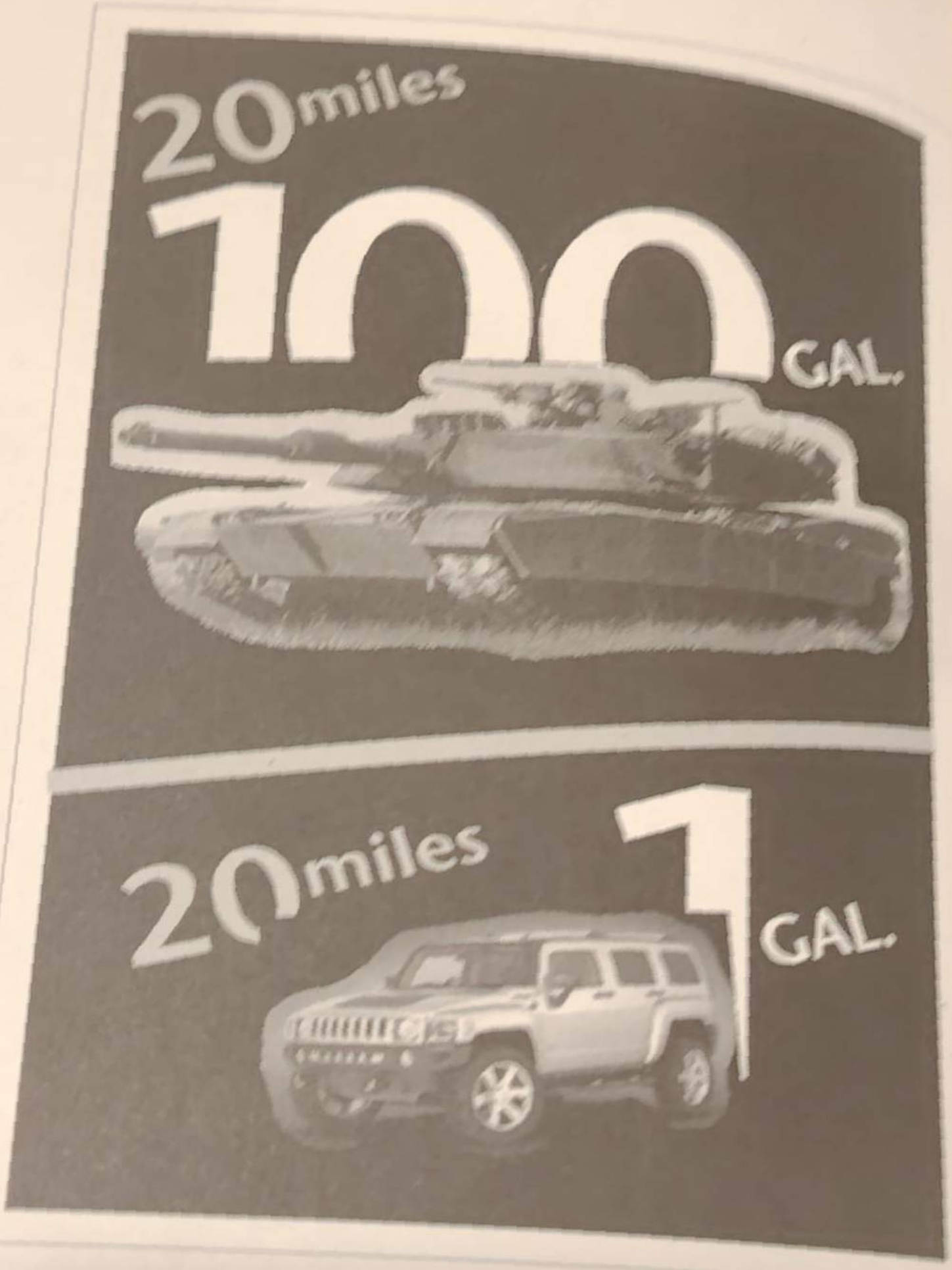
As astounding and shocking as that figure may sound—14,400 gallons an hour—the principle gas hog award goes to the B-52 Stratocruiser, which has 8 jet engines, and zips through an astonishing 86 barrels of fuel, or roughly 3,334 gallons per hour. That's with no afterburners. That number represents the plane's standard fuel use, hour after hour. Imagine: 500 gallons per minute! In just ten of those minutes, the B-52 gulps down the same amount of fuel that the average driver consumes over one year of driving.[61]

To keep the B-52 or the F-111 in the air for extended periods of time requires in-flight re-fueling. According to Janet Ginsberg, of *Business Week* magazine,

> the Air Force—the military's largest consumer, at two billion gallons a year—spends most of its fuel-delivery budget refueling planes in the air, at a cost of $17.50 per gallon....Fuel efficiency has never been a military priority, largely because the Pentagon's accounting system considers fuel purchase costs separately from delivery costs. That may have played a role in a 1997 decision by the Air Force not to install more efficient engines in the B-52H bomber.[62]

The B-52H Bomber, the plane to which Ginsberg refers, is nicknamed the Stratofortress by the military. While it holds an enormous 47,975 gallons of fuel, it still requires mid-air refueling. That's the job of the aerial refueling tankers, the KC-135 Stratotanker and the larger KC-10 Extender, which carries twice as much fuel as the Stratotanker—about 356,000 pounds, or close to 60,000 gallons. The Air Force owns both of these flying gas stations. It also owns 94 of those B-52H long-range bombers. Using EPA standards for yearly automobile fuel consumption, the amount of fuel that the KC-10 carries would keep the average family car—which uses, you will recall, on average about 500 gallons a year—running for approximately 118 years—in other words, a couple of lifetimes of driving.

The Pentagon makes public very few statistics about the B-52H and F-117 Stealth fighter planes, except to boast that the B-52H can carry 16 of the 2000-pound laser-guided bombs or 80 of the 500-pound laser-guided bombs. It is remarkable that we even know that the Stealth fighters exist. The number and kinds of vehicles, and planes housed at those 860 American bases in foreign countries, also remain a mystery. We can assume, with confidence, however, that those bases run through a considerable number of barrels of fuel.


20 miles
100 GAL.
20 miles
1 GAL.

IV
HOW MUCH POLLUTION? AN AWFUL LOT

While we may not know the exact figures for military pollution, we can, nonetheless, reach an approximate figure. We do know, with a greater degree of certainty, the numbers for America's civilian fuel consumption. I use that number here as a baseline to help us understand the magnitude of the military's demands on fossil fuels. The United States leads the world in oil consumption, using approximately 20.6 million barrels of oil daily.[63] (Forty percent of that oil—roughly 9.1 million barrels—Americans devote to one use only: powering their motor vehicles.) The petroleum industry's publication, *The Alaska Pipeline*, offers this revealing statistic: "Americans use more oil for their motor vehicles than the total combined amounts used by Russia, Canada, the United Kingdom and France."

But an even more shocking statistic is that, while the United States represents about five percent of the world population—about 330 million people—it consumes a quarter of the world's oil. Daily oil consumption for the entire world totals about 82 million barrels a day. Five percent of that figure—America's percentage of the world population—would mean that America should consume a little more than 4 million barrels a day, which would drop us from the number one slot, down to the third most thirsty country in the world, just

slightly behind Japan, a nation that, with 127 million people, currently consumes 5.6 million barrels of oil each day.

China, with a population more than four times that of the United States, now ranks second to the United States in oil consumption, even though it uses about a third less, around 6.5 million barrels a day. (I have more to say about the economic aspirations of China and its potential fuel use later.) Russia, with a population of 142 million—that is, with half the population of the United States—uses one-tenth as much as we do, 2.5 million barrels per day. Canada, with a population of just over 33 million people, uses a little over 2 million barrels of oil a day, but consumes fuel at roughly the same per capita rate as the United States.

One way of understanding those 20-plus million barrels of oil that Americans consume each day is to convert them into something more understandable, like gallons of fuel. Each barrel of oil ends up yielding approximately 19.5 gallons of fuel. In this country, then, each and every day, roughly 400 million gallons of fuel disappear, seemingly without a trace, out the tailpipe of some vehicle or out the smokestack of some machine or factory. As wild as it sounds, each gallon of gasoline, which weighs about six pounds, more than triples its weight when it burns, ending up in the atmosphere as some 19.4 pounds of carbon. Which is to say that each gallon of gasoline produces over three times its weight in deadly gases that help seal the fate of the planet. According to the last census numbers, America has 100 million households. Each household, then, on average, consumes 4 gallons of gasoline a day, and is responsible for polluting the atmosphere with almost eighty pounds of carbon every day, just from the burning of fossil fuel. That does not include electricity and natural gas, which we must add to the total pollution numbers, as well.

As of April 2007, as I mentioned before, the military counted a little over 1.4 million people on active duty—the actual number may be much higher—which amounts to something like .005 percent of the total civilian population. If the military used fuel in the same proportion as the entire civilian population in the United States, then

we could expect it to consume about 100,000 barrels of oil per day. We know it consumes at least something in the order of ten times that figure.[64]

Keep in mind that the US civilian population already consumes fuel at a rate dramatically out of all proportion to the population of the country—staggeringly greater than almost every other country in the world. Which says, of course, to a large part of the world—particularly to its poorest people—that America gobbles up the world's treasures with an appetite so monstrously greedy that it has absolutely no regard for the rest of the world. Knowing the way America gluts itself on fuel, here is an informative comparison: Each man, woman and child in this country consumes on average 1.3 gallons per day. Now comes the shocker: for 2007, each deployed soldier consumed almost 12 times the civilian amount, about 15 gallons of fuel a day. (In Vietnam, the figure reached 9 gallons a day for each soldier; in Operation Desert Storm that number rose slightly, to 10 gallons for each soldier.)[65]

The only way I know how to make military pollution in any way tangible in this essay is through numbers, but, as with almost every other military subject, the Department of Defense provides little or no data for its many thousands of vehicles. On top of that, while the great majority of vehicles burn gasoline, others use diesel, and still others use one form or another of jet fuel. In addition, a utility vehicle like the Abrams Tank can burn whatever is available, making it even more difficult to determine exact CO_2 numbers. With those caveats in mind, I forge ahead. I base my calculations of CO_2 pollution on the United States Environmental Protection Agency's fact sheet EPA420-F-05-003, dated February 2005, on greenhouse gas emissions from passenger vehicles. According to the EPA, each gallon of gasoline produces 19.4 pounds of CO_2; each gallon of diesel produces 22.2 pounds of CO_2. The average passenger vehicle, the EPA estimates, travels a total of 12,000 miles per year, and, at speeds not exceeding sixty miles per hour, gets 23.9 miles per gallon. In the process, that vehicle consumes approximately 500 gallons of gasoline,

and emits a little over 10,000 pounds (5.5 metric tons) of the greenhouse gas, carbon dioxide.

If we think about these numbers in terms of pollution, the entire country pumps into the atmosphere a staggering 8 billion pounds of greenhouse gases each and every day, which translates into 4 million tons daily. If I use the figure that I have calculated as more nearly the correct one for the military, 1 million barrels of oil a day, then the combined armed forces sends into the atmosphere about 400 million pounds of greenhouse gases a day, or 200,000 tons. That totals 146 billion pounds a year—or 73 million tons of carbon a year. The military's pollution represents an additional five percent that we must factor into this country's total pollution number. So, instead of the United States producing twenty-five percent of the world's pollution—already a shockingly high number—this country sends aloft a bit more than thirty percent of the world's greenhouse gases.

But here's something perhaps even more shocking and insidious than the military's raw numbers: As alarming as those numbers might seem, few if any citizens have ever seen them, or will ever see them. Raw data about the military's fuel consumption simply do not factor into the 400 million gallons of fuel that the country consumes each and every day; and they do not figure into any of the pollution figures that this country makes public. Military numbers remain off of any official reports, secret and out of sight. They appear nowhere public. It is like having another, albeit smaller, shadow country located right within our borders, but over which, it would appear, we have absolutely no control and about which, it would also appear, we can do absolutely nothing.

And I am talking here only about the most obvious form of pollution, that which comes from the burning of fossil fuels: greenhouse gases. The building of military bases consumes a great deal of fuel, especially those the size of our major military installations in Baghdad, and of our mega-air base in Balad, where the "daily air traffic pile-ups," according to Nick Turse, resemble those "one might see over Chicago's O'Hare."[66] As of the end of 2005, the US occupied

106 separate bases in Iraq, ranging in size from the gigantic Camp Victory complex near Baghdad's International Airport, which houses command headquarters, to a few small outposts.[67]

Summer temperatures in Iraq can soar to 110 or 120 degrees and things begin heating up as early as April, which presents particular problems. The military employs huge and complicated air conditioning systems for cooling water so it can be drunk, for cooling command centers to make them habitable, and for cooling sophisticated computers to make them operable. Some GIs are lucky enough to have air-conditioned tents. To keep planes flying in such intense heat requires even more complicated and sophisticated systems of air conditioning. The Air Force employs something called the "multi-man intermittent cooling system"—"a large air-conditioning unit equipped with ten long hoses to pump cool air into the chemical warfare suits worn by runway workers."[68] A great deal of fuel goes to running small and large generators in Iraq to keep air conditioners running at top speed twenty-four hours a day for months on end. We can only guess at the CO_2 emissions, and other pollutants, produced by such massive and complicated air conditioning systems.

Exploding bombs and cluster bombs, cannon rounds, napalm, and depleted uranium, all represent other and, in many cases, even more horrendous and deadly kinds of pollution, some forms of which persist in the atmosphere and in the earth and in human beings seemingly forever. This list does not include small arms rounds, and here the estimated numbers, once again, turn out to be staggering. For instance, for one year alone, the military estimates that it will need 1.5 billion rounds of small ammunition for their M-16 rifles. The Army now purportedly manufactures what it calls "green ammo," which has tungsten instead of lead cores in its 5.56 mm bullets.[69] Army officials add, however, that the change will improve the kill rate since the new ammunition allows for more accurate firing. Or, as one Army official put it: "Don't let 'environmentally friendly' fool you: The new rounds proved slightly more accurate than the lead versions during testing."[70]

One of the ironies of war is that, while we can calculate the pollution created by the explosion of bombs and the destruction of the infrastructure, we also have to calculate the pollution created—the fuel consumed—in rebuilding those destroyed buildings and institutions. To make things worse, targeted bombing involves blowing up highly volatile and extremely strategic sites like fuel and weapons depots, power plants, fertilizer plants, and chemical plants, releasing much more toxic waste into the atmosphere, obviously, than do residences and normal factories.

But, once again, bear in mind that no source I can find knows, with any degree of certainty, anything approximating an exact number for the military's fuel consumption—and no military official seems willing, or perhaps even able, to reveal that magic number. Even the Energy Information Administration, listed by the federal government as the Official Energy Statistics for the United States Government, carries the following, thoroughly understated warning: "Estimating, even roughly, the quantity of oil consumed for overseas military operations is an uncertain procedure."

In addition, we should also realize that the numbers I present here reflect only the most basic of greenhouse emissions—carbon. As I want to show in the course of this essay, the military's ability to pollute the environment extends far beyond the most common greenhouse gas, CO_2. In fact, in the twisted world of war, CO_2 may represent the most benign of the military pollutants. As I intend to show, the armed forces pumps into the ecological system more lethal, and much more long-lasting toxins in the course of its normal daily operations.

In a year, the average driver, as I have said, produces what seems like nothing compared with the military; a mere 10 thousand pounds. The military pollution for one year equals that which some 14.6 million cars produce driving for an entire year. And, the military has been pumping at least this much additional CO_2, probably close to 146 billion pounds of carbon—73,000 tons—into the atmosphere in Iraq, every year, for the past six years, and in Afghanistan every year,

for the past seven plus years. And, as I have also said, this represents only the pollutants most familiar to the average person—namely carbon. Other fuels that the military employs complicate my figures on total pollution.

For instance, Bunker Oil pollutes more viciously than other fuels. Even the petroleum industry itself refers to Bunker Oil as "dirty fuel." One can easily see the reason for that designation. After they complete the process of refining the oil, refiners produce Bunker Fuel from the thick sludge that remains literally at the bottom of the barrel. Environmentalists describe Bunker Fuel as more than 1,000 times dirtier than the diesel fuel that trucks and buses burn. Bunker spills in the ocean, in places like Alaska and California, have created environmental nightmares, killing not just birds and fish, but plant and coral life on the ocean floor.[1] Because of its potential to kill off marine life so ferociously, environmental groups in California, and other states, have called for its ban, at least within coastal waters.

Bunker Oil contains a higher concentration of sulfur than other diesel fuels, and so pollutes not just by leaving behind CO_2, but SO_2 (sulfur dioxide), as well. The two gases in combination form a thicker layer in the atmosphere and hold the sun's heat in more tenaciously, and thus do more damage to the environment than any one of the gases in isolation. In actuality, then, the military may not only be consuming two or three times more fuel than the DoD's stated 350,000 barrels per day, or even higher, but it may also may be polluting the earth more intensely and more perniciously than anyone knows or can discover.

Ships pollute beyond merely using Bunker Oil. Besides spreading the ocean surface with its own CO_2, SO_2, and residual oil, sea-going vessels create something called "Ship Tracks" that tail off, like vapor trails, in the atmosphere and have the potential for changing the microstructure of marine stratiform clouds. Made up of sulfur dioxide, nitrous oxide, and water molecules from both diesel-powered and steam-turbine powered ships, these long-lived clouds, according to

some studies, help to intensify the greenhouse effect, once again, by locking in place the CO_2 in the atmosphere.

The military is now using more and more of the high-powered and highly toxic JP-8 jet fuel for many of its vehicles. According to environmentalists like George Monbiot, aircraft represent the fastest and most pernicious growing source of carbon dioxide emissions. Monbiot makes the point that aviation fuel has something called a "radiative forcing ratio of around 2.7." What this means, he explains, is that, because of the added nitrous oxide, soot, sulfur dioxide and water particles, "the total warming effect of aircraft emissions is 2.7 times as great as the effect of the carbon dioxide alone. The water vapor they produce forms ice crystals in the upper troposphere which trap the earth's heat."[72]

But we must proceed with caution here, for the truth is that scientists do not understand the full effects on the atmosphere of gases emitted by airplanes, which is to say that airplanes may prove even more destructive to the atmosphere than anyone knows or guesses. The Oak Ridge National Laboratory claims that "current emissions measurement methodology is not suitable for ultra fine particles that are the dominant species in the aircraft exhaust. The fate and transport of the precursor gases and the ultra fine particles in the reactive plume of aircraft exhaust are not well understood at the present."[73]

Some things, however, are fairly certain. For instance, several studies have pointed out the serious health risks to GIs from contamination by JP-8. One of those studies reached the following conclusion: "JP-8 is less volatile than its predecessor on skin and clothing which may result in prolonged exposure. The slowly evaporating JP-8 fuel tends to linger on exposed personnel during their interaction with their previously unexposed colleagues."[74] Another study, undertaken by the Department of Microbiology and Immunology, in 1997, at the University of Arizona, Tucson, reports that chronic exposure to jet fuel can adversely affect liver function, result in emotional dysfunction, cause abnormal electroencephalograms, shorten attention span, and decrease sensorimotor speed. Exposure to JP-8 can further

compromise the immune system, causing alterations so profound and long-lasting, the study goes on to warn, that they can result in "an increased likelihood of development and/or progression of cancer, as well as autoimmune diseases."[75] The DoD has paid no attention to the report, advising only that GIs handling the fuel over long periods of time wear gloves.

And, once again, we must ask about carbon from those planes. Kerosene—jet fuel—puts considerably more carbon per gallon into the atmosphere than gasoline or diesel. The environmental action group World Changing calculates that "a 5,000 mile flight...puts out a ton and half of CO_2 *for every person on the plane*" (italics theirs).[76] Serious environmentalists are starting to talk about a total ban on air travel as a possible result of carbon overload. If a Boeing 747-100, say, holds roughly 450 passengers, the carbon output for a flight from New York to Los Angeles totals almost 1,350,000 pounds, or 675 tons. At altitude, airplanes spew not only carbon dioxide, but also nitrous oxide, sulfur dioxide, soot, and water vapor, a combination that may triple their total warming effect on the climate—the radiative effect that Monbiot and others warn us against. For that reason, some climate scientists refer to flying as "carbon overload." (Supersonic aircraft create pollution 5.4 times more corrosive to the environment than conventional aircraft.)

Trying to calculate CO_2 pollution for military flying is once again one of those instances of trying to make informed estimates. For one thing, if we consider the Stealth F-117, we know next to nothing about its fuel consumption. We do know, however, that sorties for that plane at the beginning of the Iraq War lasted 1.6 hours. Flying out of some distant bases raised the average sortie time to 5.4 hours, with some sorties lasting up to 7 hours—refueling accomplished in the air. There were 42 F-117s, each flying over 1,300 combat sorties. Using an average of 5 hours per sortie, at 619 miles per hour, time in the air for just this type of plane comes to 190,827,000 miles, resulting in an astonishing 26 million tons of carbon. To get some idea of the magnitude of that number, it would take a fully loaded Boeing

747-100, flying from Los Angeles to New York, 328,165 trips to produce that same amount of pollution. On average, 40 flights leave from LAX for JFK daily, so those 328,165 trips, in commercial terms, would take 8,204 days, or almost 23 years. Sixty other kinds of planes flew sorties over Iraq. The total amount of carbon dioxide that went into the atmosphere is not just high—but goes totally unreported.

A draft report prepared by the Bush administration for the United Nations, released in March 2007 (but due one year earlier, in January 2006), estimates that for the United States the emissions of greenhouse gases will rise from 7.7 billion tons in 2000 to 9.2 billion tons in 2020—an increase of 19.5 percent. James Connaughton, Chairman of the White House Counsel on Environmental Quality, the office responsible for the report, points out that the biggest source of the gases, about 84 percent, results from the burning of fossil fuels, chiefly oil, coal, and natural gas.[77] Since the report includes no category for the military, it remains entirely silent on the amount of greenhouse gases that the military has pumped into the atmosphere, twenty-four hours a day, every day, for the past six years in Iraq, and for the past seven-plus years in Afghanistan, and in other places that we hear nothing about. With over 800 of those bases overseas, we cannot know about them all. But we occasionally hear about some of them when the local people decide they have had enough and want the military off their land.

Those military bases, of course, contribute their own toxins to worldwide pollution. Remember, we really do not know the figures for the military's fuel consumption overseas. But we do know that the military cannot operate without enormous amounts of it and thus cannot operate without polluting everything it touches. The military locates the overwhelming majority of its bases in places where people are poor, with little time and legal expertise to face the formidable bureaucracy of the United States military. Of course, it turns out that those who protest against and petition the military are mainly poor people of color, a combination that does not generally make for suc-

cess, particularly against such a commanding giant like the United States military.

Most overseas military base agreements with the so-called host country were signed well before the world had the environmental awareness it has now, and so contain, at best, vague environmental provisions, if any. The military has compounded the problem because it keeps few records on the exact amounts of toxic materials and explosives it has used, and no records about exact locations where they used them. In addition, the United States affords no legislative environmental protection for our foreign bases. And finally the Pentagon spends virtually nothing cleaning up toxins overseas.[78]

The public record at times comes clear, but usually after the military vacates a base for bigger quarters. For example, only after the Pentagon closed the Subic Naval Station and the Clark Air Force Base in the Philippines, in 1992, did the Filipino people discover that the military had been dumping tons of toxic material into the ground and into the rivers and streams, and had buried barrels of it in uncontrolled landfills, having not released this data to the Philippine government itself. When Mount Pinatubo erupted, in 1991, 20,000 people found themselves homeless. The US military relocated most of those people onto the grounds of their former facility. The people dug wells and planted crops—"unaware that the ground water they drank and bathed in, the soil their rice and sweet potatoes grew in, the creeks and ponds they fished in were contaminated by toxic substances dumped during a half century of U.S. tenure."[79] The water alone held a range of contaminants, including heavy metals, pesticides, acids, degreasing solvents, and old munitions. Health workers began keeping track of a sudden rise in "spontaneous abortions, stillbirths, and birth defects; kidney, skin, and nervous system disorders; cancers, and other conditions that can be caused by exacerbated exposure to chemical intoxicants."[80]

Satchell goes on to say that Philippine doctors and government officials, abetted by the independent studies of health and pollution experts from the West, now believe that hundreds or more residents

were poisoned by heavy metals like lead and mercury; degreasing solvents, used oil, pesticides, acids, asbestos, and old munitions. Today, Satchell says, "the Pentagon acknowledges polluting major overseas bases but insists that the United States isn't obligated to clean them up." In response to a Philippine senator asking for help cleaning up the site in 2000, then US Defense Deputy Undersecretary Sherri Goodman responded: "Our laws do not permit us to spend funds for the purposes you have requested."

The discoveries in the Philippines put local people on alert. Some of them protested—valiantly and bravely—to oust the US military from their lands. Farmers in both Japan and South Korea protested the contamination of their fields by the military exploding live rounds where they raise their crops.[81] In several locations in Germany, at about the same time as the discovery in the Philippines, workers discovered that industrial solvents, firefighting foams, and waste had converged to destroy their delicate ecosystems.[82]

And we have even witnessed one great and decisive victory on the Puerto Rican island of Vieques in the North Atlantic. For several decades, the Navy used the island as a practice site to train bomber pilots, using live rounds. In 1999, two bombs purportedly went astray and killed a civilian guard. In 2001, the people of Vieques voted in a referendum to throw the military off its island. The referendum passed; and in 2003 the Navy withdrew.

But that's just part of the story. What the Navy left behind tells a much harsher and vicious tale. Consider the following statement from James Porter, Professor of Ecology at the University of Georgia, on April 17, 2001, in support of the Vieques referendum:

> Our ecological investigations on Vieques show destruction to coral reefs from bombing activity there. In addition, we discovered the existence of thousands of barrels and compressed gas cylinders sunk onto the coral reefs of Vieques. We have now demonstrated that those toxic substances are leaking from the underwater bombs, and that this toxic material is now found in living marine organisms on

the reef. The containers are rusting and are fragile, but some are still intact.

> This sensitive area lies within the bombing impact area, with the consequence that even so called "green" munitions can break them open. The risks posed to human and environmental health by any further disruption of this site are unacceptable.[83]

Kathryn McCarrey wrote the principle book on the struggle on Vieques Island; it is aptly titled *Military Power and Popular Protest.* She tells how the Navy has used the eastern end of the island for bombing exercises since the 1940s. According to the Navy itself, they bombed the island over that period approximately 180 days a year: "In 1998, the last year before protest interrupted maneuvers, the Navy dropped twenty-three thousand bombs on the island, the majority of which contained live explosives." The most serious destruction to the island has occurred at the live-impact range, but all 14,000 acres and its waters at the eastern tip of the island have been used for live firing practice, amphibious landing sites, and toxic waste dumps. Coral reefs and sea grass beds have been seriously compromised from bombing, sedimentation, and chemical dumping. Groundwater has been contaminated by nitrates. Heavy metals have contaminated the live-impact range; studies have shown that those metals have entered the food chain. McCaffrey concludes her section on pollution with this grim news: "Of particular concern are revelations that the navy has fired depleted uranium munitions on the range and the particular dangers and risks that poses for the civilian population."[84]

None of this, as I have said, is part of the public record. And that the military hides all its data about pollution—both in magnitude and in kind—makes us everyday citizens into fools and dupes. Public service announcements, advertisements, politicians, and celebrities, all with the best of intentions, urge every American to recycle and reuse. Be responsible, they shout. In one way or another, they tell us that it is up to each one of us to turn aside the horrible effects of global warming, and that the cumulative effects of each small action

add up. Every paper product carries the friendly reminder to dispose of waste and to recycle properly. Those in charge make us feel that the crisis rests solely with us—that such a crisis remains in our hands to fix or to fumble. But the military numbers reveal a different, perverse truth.

Even if every person in America decided to stop driving today, and even if every polluting factory in the country voluntarily shut down its operations right now, the land and the animals and the water and the air—those things that we generally occlude by referring to them as the environment—would still face a most serious assault. And, ironically, that greatest single assault on the environment, on all of us around the globe, comes from one agency, that one agency in business to protect us from our enemies, the Armed Forces of the United States.

The terrorists have attacked our country. Unwittingly, perhaps, we gave them permission. They turn out to be our own military. We can't hear the bombs blasting, or the guns rattling—all of that takes place at a pleasantly far distance. But we're breathing in the fallout; we're drinking up the fallout. We, too, are collateral damage. We, too, are victims of friendly fire. We all live on an island that resembles, more or less, Vieques.

It's time to turn the equation around. Global warming is not just *our* problem—*my* problem—but, more than that, it is also the *military's* problem, our government's serious and continuing problem. The latest statements from the Obama administration seem to place our military in Afghanistan in a combat mission for a very long time. Even with the SOFA agreement in place, no one knows how many troops will remain in Iraq in their so-called peace-keeping mission, removed from the towns and villages and billeted at their various sprawling bases around Iraq. We have built the largest and most expensive embassy in the world, in Iraq—700 million dollars, with 26 hardened buildings, on 104 acres, just five acres shy of Vatican City. Citizens look like patron saints of the environment compared with the rampant destruction that the military causes.

Research into the military and war brings one face to face with the most heart-wrenching fallout that one could ever imagine. I end this section with one particularly painful example. According to a report by researchers at Portland State University in Oregon, released in the summer of 2007, male veterans of the wars in the Middle East are twice as likely to commit suicide as their civilian male counterparts. Once again, this is hard data to hunt down, for the Pentagon employs no comprehensive system for tracking suicides of veterans of the Iraq and Afghanistan wars. The Department of Veterans Affairs tallies the number of those suicides, but only if the veteran has already received his or her discharge from the military. The Associated Press reported on October 31, 2007 that, according to the Department of Veterans Affairs, from the start of the war in Afghanistan, in 2001, to the end of 2005, 283 soldiers who had served and been discharged committed suicide. The report further indicated that the suicide rate for the Army in 2006 had risen to 17.3 per 100,000 troops, the highest level in 26 years.[85]

How do we count these victims of the war? Into what if any category should we place them? I know that I cannot strictly attribute their deaths to pollution, but at least one writer, Penny Coleman, in her book *Flashback: Post-Traumatic Stress Disorder, Suicide, and the Lessons of War*, connects some of those suicides, at least, to untreated Post-Traumatic Stress Disorder (PTSD), the source of which trauma, she argues, comes from the military's use of defoliants in Gulf War I and perhaps Gulf War II. But who knows why they took their own lives? No one seems willing to carry out any extensive research on military suicides. And so we are left to wonder. Their deaths definitely constitute fallout from this war, only a different kind, and a different order, from those felled by ordnance and munitions and various kinds of poisons.

The father of one suicide victim refers to his son, who served two tours in Iraq, as "KBA": Killed Because of Action. That man's son is gone, as completely and thoroughly as any young man who had been blown up by an IED on a road in Iraq. We will have to search hard,

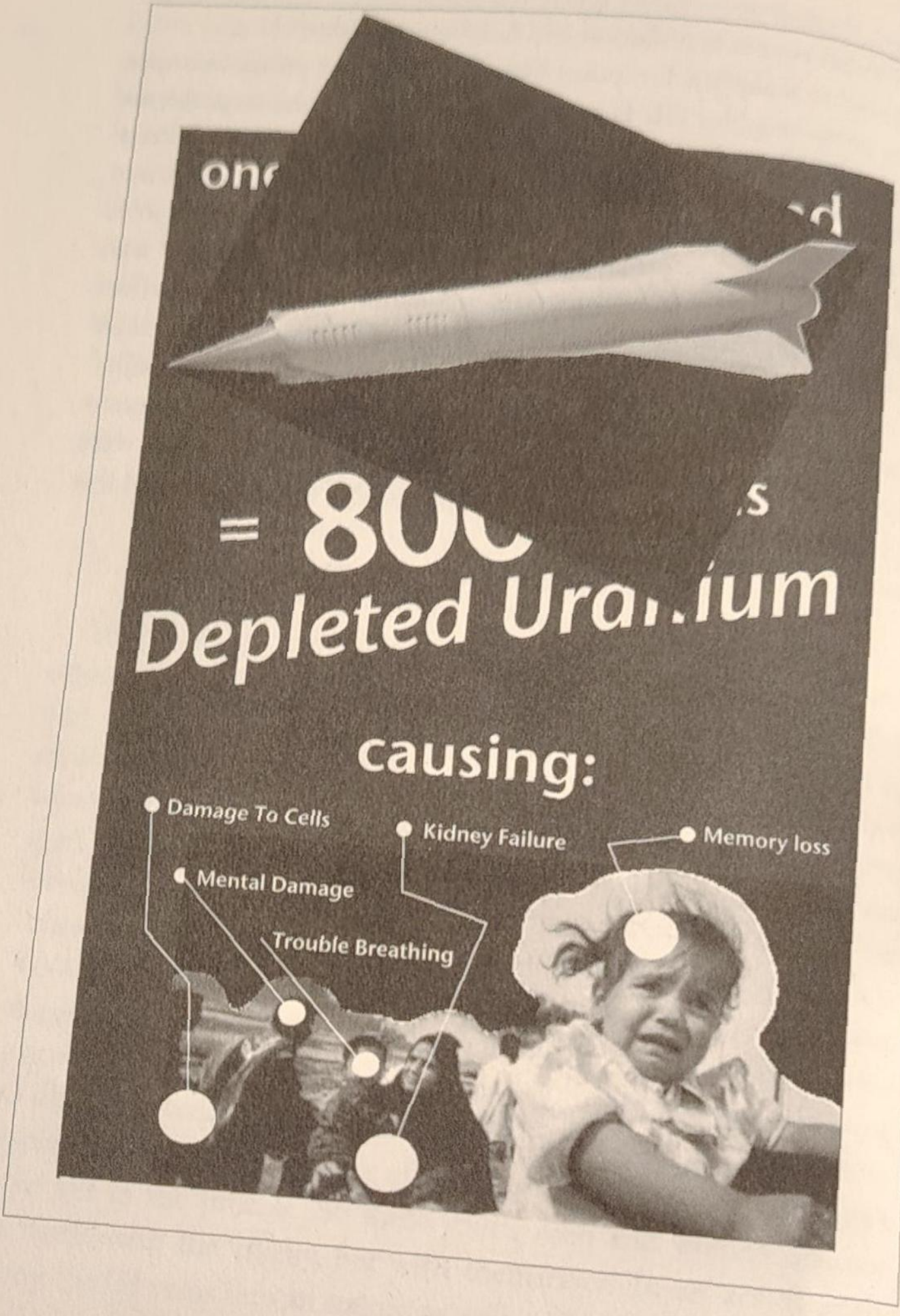
however, to find that young man counted in any war statistic, or to locate him in any recognizable category. But he has certainly disappeared from his father's life—and his mother's life, and possibly his brother and sister's life, and from twenty or thirty or a hundred other lives. Whatever the case, the indelible fact remains that the father and mother grieve deeply and continuously over the unspeakable loss of their son. Such pain does not dissipate easily or quickly, or even ever. Walt Whitman, who tended the wounded and the dying on the battlefields of the Civil War, describes those matters of the grieving heart and how the grief knows no boundaries:

The living remain'd and suffer'd, the
mother suffer'd,
And the wife and the child, and the
musing comrade suffer'd,
And the armies that remain'd suffer'd.

In November 2005, *CBS News* reviewed data on suicide rates among returning GIs from the Middle East in all fifty states. What they uncovered prompted them to call their findings on suicides an epidemic: In 2005, there were at least 6,256 suicides among those who served in the armed forces. The highest rates occur in veterans aged twenty to twenty-four, all of whom CBS points out, joined and served during the "war on terror." This rate exceeds by two to four times the rate for the same age group in the civilian population. Over 4,000 GIs have lost their lives to the so-called insurgents in Iraq. A good many more GIs—fifty percent more—lose their lives to the pounding psychological horrors of having to fight a war, of having to kill, from seeing others killed, or from exposure to defoliants or depleted uranium. Degrading others into the enemy, degrades one's own self in the process. So these young men and women die, not in battle with the enemy, but with themselves. In an act of grisly irony, the GI turns into an enemy, as well, and kills himself or herself

Where, then, do we actually locate the war? Who or what is the enemy? What counts as pollution and fallout—even death?

I need to make one last point here. The more the public becomes aware of the troubles GIs face when they return, the more problems it seems to make for the returning veterans. The Associated Press reports on a government study that purports to show that employers are reluctant to hire returning GIs and that, when they do find jobs, GIs get paid less than their civilian counterparts: "Strained by war, recently discharged veterans are having a harder time finding civilian jobs and are more likely to earn lower wages for years, partly because of employer concerns about their mental health and overall skills." The study, done in late 2007, found that 18 percent of the veterans who looked for jobs within one to three years of their discharge were still unemployed. One out of every four who did find jobs earned less than 22,000 dollars per year.[86]


one
d
= 80
s
Depleted Uran ium
causing:
Damage To Cells
Kidney Failure
Memory loss
Mental Damage
Trouble Breathing

V
DEPLETED URANIUM

All this talk about pollution, however, may fade into just so many numbers in the face of one sobering fact: that a good deal of the country of Iraq, both its deserts and cities, hums with radioactivity.[87] For, since 1991, the US has been manufacturing "just about all [of its] bullets, tank shells, missiles, dumb bombs, smart bombs, and 500- and 2,000-pound bombs, and everything else engineered to help our side in the war of Us against Them, [with] depleted uranium in it. Lots of depleted uranium. A single cruise missile, which weighs 3,000 pounds, carries within its casing 800 pounds of depleted uranium."[88] Recall that the Air Force dropped 800 of those bombs in just the first two days of the war. The math: 800 bombs multiplied by 800 pounds of depleted uranium equal 640,000 pounds, or 320 tons of radioactive waste dumped on that country *in just the first two days of devastation*.[89]

The Pentagon and United Nations Environment Program estimate that in March and April of 2003, alone, United States and British forces in Iraq used somewhere between 1,100 and 2,200 tons of armor-piercing shells containing depleted uranium. Dan Fahey, a representative of the veterans advocacy group, Swords to Ploughshares, who served in the Persian Gulf War in 1991, says that

the United States and Britain released in one year alone—2003—100 to 200 tons of depleted uranium. That's a total of roughly 40,000 pounds of deadly depleted uranium.[90] No wonder, then, that the *London Sunday Times* reported, in February 2006, that a few days after "Shock and Awe" began, radiation detectors in Britain recorded a four-fold spike in air-borne uranium. One can only imagine what that spike might have registered closer to ground zero, directly over the city of Baghdad and its environs. A few concerned scientists have provided at least a clue.

One such clue comes from Doctor Ahmad Hardan, scientific advisor to the World Health Organization, who says that the use of depleted uranium "has caused a health crisis that has affected almost a third of a million people. DU has a half-life of 4.7 billion years—that means thousands and thousands of Iraqi children will suffer for tens of thousands of years to come. This is what I call terrorism."[91] The rate of malignancies in children in Basra has quadrupled since the last Gulf War.

As a physician, Hardan conducted most of his research in the south of Iraq, especially in Basra, and because children remain particularly vulnerable to radiation, his predictions for the children of Iraq read like some kind of science fiction nightmare. Over the next two years, he says, he expects to see a significant rise in diseases of children's eyes: "cataracts, anophthalmia, microphthalmia, corneal opacities, and coloboma of the iris." He also foresees fetal deformations, sterility in both sexes, increases in miscarriages, and increases in premature births (and deaths). But most gruesome, perhaps, are his predictions for congenital malformations, additional abnormal organs, hydrocephaly, anencephaly, and delayed growth.[92]

I ask again: How is it possible that such a crucial story never took over the front page of every major newspaper in this country, and never appeared on every major news channel in this country? Why is it that such significant information appeared first only on out-of-the-way internet sites, and has only recently, eighteen years after the first Gulf War and eight years into the second gulf war, begun to appear in

some newspapers? While the Pentagon does not deny using depleted uranium, various military spokesmen have repeatedly insisted that its toxicity remains at safe levels for GIs.

In the first Gulf War, Operation Enduring Freedom, the military limited its use of depleted uranium to desert areas. In 2003, in Operation Iraqi Freedom, Pentagon strategists lifted all such restrictions, leaving the military free to use Depleted Uranium indiscriminately near and in heavily populated areas. Larry Johnson, a reporter for the *Seattle Post-Intelligencer*, wrote in 2002, that "DU shell holes in the vehicles along the Highway of Death [in Iraq] are 1,000 times more radioactive than background radiation, according to Geiger counter readings ..." He added that "one destroyed tank near Baghdad was 1,400 times more radioactive than normal background radiation. Another was 1,500 times more radioactive than background."[93]

Depleted uranium is essentially U-238, the isotope that remains after the fissionable isotope, U-235, has been extracted from uranium ore. To use U-235 for nuclear reactors, it must be enriched to three percent. Enriching it further to ninety percent makes it suitable for use in nuclear warheads, which scientists call "weapons grade" uranium. Enrichment thus "depletes" the natural uranium of its isotopic fraction of U-235.[94] We should more accurately call the uranium recycled for use in munitions "dirty depleted uranium," or "uranium plus," because it contains additional highly-toxic elements, like plutonium. According to the reporter Robert James Parsons, who has followed the subject for some time, "1.6 kilograms of plutonium can kill 8 billion people."[95]

For decades, the military viewed depleted uranium as mere waste. And, because depleted uranium continues to emit radioactivity over its 4.5 billion year half-life, the military struggled to find ways to dispose of what Project Censored estimates as the 750,000 tons (1.5 billion pounds!) of radioactive waste that the military generates annually, "more than the five largest chemical companies in the US combined. This pollution occurs globally as the US maintains bases in dozens of countries."[96] By turning nuclear waste into weapons, the

Pentagon offered proof of true Yankee ingenuity. On the one hand, the Pentagon had found a solution to a huge storage problem and, on the other, it had created a new and powerful, highly useful category of weaponry. And the solution came with a bonus for arms manufacturers, for the military could offer all their nuclear waste to them free of charge. Up to that point, arms makers had to use the non-radioactive alternative, tungsten, as a penetrator, most of which they mined in China, and that proved very expensive.

Scientists classify depleted uranium as a pyrophoric, a substance that ignites at a velocity tremendous enough to create a literal firestorm, burning at unimaginably high temperatures, anywhere from 3,000–5,000° centigrade, or 5,432–9,032° degrees Fahrenheit. Such intense heat enables a missile or shell to penetrate the hardest of armor, carbonizing everything it touches, resulting in a profusion of millions and millions of tiny particles—in effect, an overwhelming fallout of radioactive dust—consisting of a uranium oxide aerosol that contaminates whatever surface on which it finally settles. Wind can also carry these small particles considerable distances. Most of the dust particles measure less than 1.5 microns, small enough for Iraqi men, women and especially small children, to take into their systems—through their pores, their mouths, and most destructively through their nostrils, a most deadly source of internal radiation. Just through the simple act of breathing, the population of Iraq, in the most literal sense, unwittingly poisons itself every day.[97]

To make matters even worse, the intense heat transforms those tiny particles into a stone-like hardness, turning them into insoluble pellets, and so making it a near impossibility for the body to excrete. Those pellets may account for the many kinds of illnesses that Iraqis, especially children, now experience. Larry Johnson, the investigative reporter from the *Seattle Post-Intelligencer*, tells us that, nine years after the first Gulf War, military doctors were still detecting depleted uranium in urine samples in fourteen out of twenty-seven British, Canadian, and United States veterans. Physicians also diagnosed every one of those returning veterans as suffering from typical Gulf War

Syndrome ailments. Some clinicians think that a connection might thus exist between depleted uranium and the onset of so-called Gulf War Syndrome.[98] The root cause of Post Traumatic Stress Disorder might lie in something other than emotional or psychic trauma. In some cases, PTSD may indeed have a deep physical cause.

Arthur Bernklau, executive director of Veterans for Constitutional Law, in New York, harbors no doubt about the connection between depleted uranium and Gulf War Syndrome. Writing in the *Preventive Psychiatry E-Newsletter*, he blames depleted uranium for the death of 11,000 Gulf War soldiers: "Of the 580,400 soldiers who served in Gulf War I, 11,000 now are dead. By the year 2000, there were 325,000 on permanent medical disability. More than a decade later, more than half (56 percent) who served in Gulf War I have permanent medical problems. The disability rate for veterans of the world wars of the last century was 5 percent, rising to 10 percent in Vietnam." Bernklau goes on to say that "the long-term effect of DU is a virtual death sentence."[99]

Marion Fulk, a former nuclear physicist from the Lawrence Livermore Nuclear Weapons Lab, who also worked on the Manhattan Project, interprets the new and rapid malignancies in the soldiers (from the second Gulf War) as "spectacular—and a matter of concern." Fulk concludes: "While this important story appeared in a Washington newspaper and the wire services, it did not receive national exposure—a compelling sign that the American public is being kept in the dark about the terrible effects of this terrible weapon."[100]

Depleted uranium exhibits a particular affinity for the bones, kidneys, and sexual organs, which can produce severe chromosomal damage, difficult if not impossible to detect.[101] It turns out, then, that United States military not only has killed perhaps hundreds of thousands of Iraqi men, women, and children, but that its long-range policy carries the added horror of destroying future generations, as well. This country manufactures those weapons; we must see this policy as deliberate.

To put it bluntly, this country has managed to implement a thoroughgoing system for total eradication—what the entomologist E.O. Wilson and others refer to, with a word that does not appear in the first edition of the *Oxford English Dictionary*, as *omnicide*—the destruction of all life, human and animal and vegetable, through the corrosive actions of human beings. The war in Iraq may have fallen off the front page, and the number of suicide bombers may have decreased, but the destruction of all life forms continues. And the killing continues in great part through the slow but steady and continual radioactive poisoning of the entire Iraqi population. Even after our troops leave the country, our presence will linger, in the most pernicious, insidious, and ghostly way. We might all well ask the question here: How does radiation contribute to global warming?

Human beings are not the only victims of this unspeakable poisoning through exposure to uranium. Plants and animals also absorb the radioactive particles, making uranium a permanent part of the food chain. Once in the soil, a report by the United Nations Environmental Program concludes, depleted uranium pollutes the groundwater by increasing uranium levels one hundred fold.[102] Scientists have gathered a good portion of the data about deaths from radiation in Iraq from the first Gulf War. According to an article in *The Lancet*, a leading medical journal, mortality rates among Iraqi children have increased sharply, along with cancer rates: "As many as 500 children a day are dying in Iraq." The report notes that the "death rate for Iraqi children under 5 years of age increased from 2.3 percent in 1989 to 16.6 percent in 1993.[103] The United Nations Children's Fund, UNICEF, reported that "mortality of children under five more than doubled to 131 per 1,000 live births from 1994 to 1999. Cases of lymphoblastic leukemia have more than quadrupled, with other cancers also increasing at an alarming rate."[104]

The Save the Children Foundation and the National Center for Health Statistics have released the latest studies, in May 2007, of infant mortality rates around the world. While the rate in the United States has remained fairly constant over the past two decades, the rate

in Iraq is, to use the word from the report, soaring: "In the years since 1990, Iraq has seen its child mortality rate soar by 125 percent, the highest increase of any country in the world."

Adult males show the highest increases in cancers of the lung, bladder, bronchus, skin, and stomach. Adult females experience the highest increases in breast and bladder cancer, and Non-Hodgkin Lymphoma. Congenital malformations have also increased, as Ahmad Hardan predicted, as have diseases of the immune system.[105] In 1999, a United Nations sub-commission considered depleted uranium dangerous enough to call for its ban worldwide; and in November 2006 the European Union made its fourth plea for a moratorium on such weapons.[106]

We do have some data for Gulf War II, and they repeat what we know from the first Gulf War. Nearly half of the soldiers in a unit recently returned from Iraq developed malignant growths—eight malignancies out of twenty soldiers. Commenting on those numbers, Marion Fulk attributes what he calls those "quick malignancies" to the particular effect of depleted uranium. According to some medical experts, such abnormalities provide "critical evidence" that the source must be depleted uranium weapons.[107]

One might wonder just what those malignancies mean? Are they just surface evidence of some deeper, more profound damage to the system? Robert C. Koehler, of the Tribune Media Services, in Chicago, summarizes what others have reported: "DU dust does more than wreak havoc on the immune systems of those who breathe it or touch it; the substance also alters one's genetic code. The Pentagon's response to such charges is denial, denial, denial. And the American media is [sic] its moral co-conspirator."[108]

So, what do the malignancies mean? Nothing good, I would think, particularly when one considers a photo essay that *Life* magazine ran four years after the conclusion to the first Gulf War. The piece, which they bravely titled "Tiny Victims of Desert Storm," featured photographs of numerous cases of birth defects or immune-system problems in infants conceived or born by families of returning veterans.

The article concluded that "of the 400 such vets who answered [Don Riegle's Senate Banking] Committee inquiries, a startling 15 percent reported defects of immune-system problems in children conceived after the war."[109] It may be of some interest to note here that the Department of Veterans Affairs, along with all the other kinds of traumas and deaths it refuses to tally, keeps no records of birth defects that occur in families of veterans.

Imagine a good portion of the country of Iraq, then, covered with a fine film of the highly toxic U-238 isotope. I can assign no number to this kind of pollution; it registers on no known scale. So difficult to fathom, the idea barely registers in the ordinary person's imagination. The United States military refuses to allocate any money for its clean-up and, unlike Britain, refuses to disclose the grid coordinates where it has used the radioactive munition.[110] The United States has prevented Iraq from importing equipment to clean up the radioactive dust.

I quote here from Mark Gaffney's incisive work on the military's use of depleted uranium in the first Gulf War to give some graphic sense of the weapon's ability to utterly devastate a battlefield, not just for the moment, but also for millennia to come:

> When a ten-pound uranium shell slices through a target vehicle it sheds a part of its mass, causing a firestorm of burning and non-burning uranium fragments. These, in turn, cause catastrophic secondary fires and explosions. In war footage of Desert Storm the flaming DU shells can be seen arcing like tracers across the night sky. The slender rounds are solid DU—no explosive charge is needed. Each has a plastic outer casing known as a sabot, which centers the round in the bore and which falls away after the shell exits the gun tube. The war footage is graphic. It shows that targeted Iraqi vehicles stood no chance. Pity the poor Iraqi soldiers who came under DU attack. Very few lived to tell about it. Within seconds, most were charred beyond recognition in an incendiary fireball. US military jargon even coined a new term, "crispy critters," to describe the grisly Iraqi corpses of war.[111]

In 2002, at the Armed Forces Radiobiology Research Institute, in Bethesda, Maryland, researchers found that even though the alpha

radiation from depleted uranium may be relatively low, breathing in depleted uranium as a metal can damage a person's DNA and create carcinogenic lesions in the cells that make up the bones.[112] To give some idea of the potency of depleted uranium, US troops or Iraqis breathing-in no more than a gram is equivalent to receiving an x-ray every few minutes over the course of their shortened lives.[113]

Diane Henshel, an Associate Professor of Public and Environmental Affairs at Indiana University and the co-author of an article in *Nature*, in Spring 2003, on the effects of depleted uranium, warns: "[The Iraqi people] will have increased problems with changes in behavior, and increasing problems with their kidneys. And at high enough levels you will start to see effects on their sperm count... There are studies that indicate that birth defects are increasing in the areas of high depleted uranium concentration of the Gulf War...A whole host of heavy metals that are used in weapons in small concentrations, of which not much is known, but they are going to end up in the soil, in the air, in the water of people in any war-torn area in Iraq."[114]

It is near impossible to imagine the willful eradication of the future of a civilization, but Iraqis are undergoing exactly that horrific experience. And it is we, as citizens of this country, who are responsible for such terrible crimes against humanity. All that death and desecration has been done in our name, and we are permitting it to happen. Although the information has been difficult to uncover, it is now there, apparent and obvious. National Public Radio has acknowledged its use on its news program, *Science Friday*. We cannot anymore fall back on the excuse of ignorance. Radiation poisoning is taking place in our name. It is making a hell out of children's lives. I am not naïve enough to think we can shut down such an insidious practice, or horrors even worse, without shutting down the entire operation, without eliminating war. But, I do know that they must be shut down.

With more than thirty percent of the GIs returning from Iraq diagnosed with Post-Traumatic Stress Disorder, or some kind of brain

damage, disorientation, or depression, one does not have to be a medical expert to safely conclude that, in at least a portion of those cases, as I have suggested earlier, exposure to depleted uranium has caused those GIs to suffer from something we defuse with the generalized name, Gulf War Syndrome. Rather than an evil promulgated by the Pentagon itself, such naming turns things around and makes it the GI's problem.[115] All of which should give us pause about the rising incidence of bizarre illnesses and strange forms of cancers in the Iraqi population itself, as well as in our own returning veterans. It should also make us re-think the high incidence of suicides in returning veterans from Iraq.

I return once again to Mark Gaffney for a conclusion. To frame it, I remind us that the Bush administration issued repeated warnings over its eight-year term that

> so-called Islamo-Fascists have the ability, and what's more the desire, to attack us with radiological weapons. However, the evidence makes it clear, as Gaffney points out, that our leaders have done it on a greater scale. America's use of DU weapons has already caused the deaths of hundreds of times more Iraqi and Afghani civilians, including women and children, than died in the 9/11 attack. Moreover, it is likely that the DU particles already released into the environment, given their insidious effects and 4.5 billion year half-life, will go on killing innocent people for a very long time; indeed, perhaps for the rest of human history, essentially for all of time. In short, our leaders have permanently fouled our nest, surely the ultimate atrocity. They cannot plead ignorance....The toxic effects of DU were understood even at the time of the Manhattan Project.[116]

PERCHLORATE

A HIGHLY TOXIC EXPLOSIVE INGREDIENT

CAN:

- INHIBIT THYROID FUNCTION
- CAUSE BIRTH DEFECTS
- LOWER IQs
- EXPOSE INFANTS AND CHILDREN TO HIGHLY SERIOUS HEALTH DEFECTS

AND IS FOUND IN EXCESSIVE AMOUNTS IN:

- 93% OF LETTUCE AND MILK TESTED NATIONALLY
- 97% OF BREAST MILK SAMPLES TAKEN RANDOMLY FROM AROUND THE U.S.

VI
BOMBS AWAY, ALL DAY

Who knows how many million pounds of depleted uranium the United States visited on all forms of life in the city of Baghdad on that first moonless night alone—March 19, 2003—of "Shock and Awe?" We may never know, but I count thirty-six different kinds of bombs that the military currently uses, from precision-guided missiles to unguided munitions, and an array of cluster bombs, most of them containing some amount of depleted uranium in their nose cones.[117] Writing in the *New Yorker* in late 2005, Seymour Hersh maintained that just one single Marine aircraft wing dropped more than 500,000 tons of bombs in Iraq from March to November 2003.[118] That's one billion pounds of horror, several hundred million pounds of which consisted of radioactive waste that showered the city.

Some military experts think Hersh got his facts wrong, even though Hersh claims he got his data from a Marine website. Whatever the case, according to CENTAF's own numbers, from March 19, 2003 to November of that same year, the military launched 19,040 guided missiles; 8,885 unguided missiles; dropped 23,836 unguided cluster bombs; 44,954 unguided Rockeye cluster bombs; and 165,236 WCMD cluster bombs. Who knows what the tonnage totals? But given the numbers we do know something about, we can conclude

that the decimation must have been enormous, in terms of buildings leveled, human beings killed, and psyches forever decimated.[119]

Nick Turse, who has been researching the air war on Iraq from its inception, points out that the military is especially cagey about statistics for aerial bombing. He says, however, that Air Force officers acknowledge that United States and coalition aircraft dropped at least 111,000 pounds of bombs in 2006—55 tons of munitions. That figure does not include guided missiles, unguided rockets, or cannon rounds. It also does not include the bombing done by the Marine Corps or by armed helicopters.[120]

In its arsenal, the Pentagon boasts of several major bombs. The first is the laser-guided GBU-28 (Guided Bomb Unit) "Dense-Metal Penetrator," more commonly called the Bunker Buster, developed by the Raytheon Corporation. This is a weapon that, according to some accounts (again, as with most things military, numbers differ here), weighs upwards of 4,700 pounds with a 4,400-pound penetrating warhead.[121] Designed to penetrate multi-layered hardened targets or structures buried deep beneath the earth, the bomb explodes underground, the weight of the bedrock pressing down on it compounding the bomb's explosive energy. "The resulting seismic shock wave could crush an underground bunker—or the internal organs of anyone caught in the 'overpressure' from a blast wave twenty-times stronger than the bomb blast itself."[122]

A reporter for the *Le Monde diplomatique*, Robert James Parsons, reveals that the military affectionately (and secretly) refers to the GBU as the Great Big Uranium, since the bomb contains an explosive charge of depleted uranium weighing as much as 1.5 metric tons. Parsons goes on to say that the "GBU 'dirty bomb' eclipses any terrorist's fantasy—one-and-a-half metric tons of aerosolized particles capable of causing genetic mutations and death for the next four billion years."[123]

According to statistics from CENTAF, the most frequently used bomb in Iraq in 2006 was the smaller GBU-12, again a laser-guided general purpose bomb weighing a mere 500 pounds. Again, Nick

Turse, in "Bombs Over Baghdad," points out that "in addition to 95 GBU-12s 'expended,' 67 satellite-guided, 500-pound GBU-38s and 15 GBU-31/32 munitions were dropped on Iraqi targets in 2006, according to Air Force figures."

These weapons are followed by a series of what are called Fuel Air Explosive weapons—or thermobaric weapons, ranging in size from 100 pounds to 500 pounds. Fueled by ethylene oxide, upon impact these bombs produce an aerosol cloud or mist, which instantaneously detonates, releasing a shock wave so powerful that it blows into bits anything—buildings, trees, rocks, animals, and, of course, people—over an astonishing 50,000 square feet area.

The Pentagon lists another major bomb, the BLU-82B, or what the military playfully refers to as "Big Blue 82," or "The Daisy Cutter." The military dropped these Daisy Cutters out of the back of C-130 transport planes in Afghanistan to seal cave entrances in Tora Bora. Weighing 7.5 tons (15,000 pounds), the bomb contains a warhead filled with 12,600 pounds of GSX, a gelled-slurry explosive, which on impact creates a concussive effect greater than the Bunker Buster, rupturing ear drums and internal organs, and, as the huge firebomb sucks all the oxygen out of a wide area, killing every living thing either through incineration or asphyxiation, or both. An embedded reporter provides a description of a Daisy Cutter attack: "The sound split the air. It was like a thunderclap directly overhead at the height of a ferocious storm. I could see the massive oily black cloud of the explosion as it rolled across the hillside, a mixture of thick smoke, chunks of earth and debris."[124]

Perhaps the most insidious munitions in the military arsenal are the cluster bombs, the CBU-87B and the BLU-97B. Dropped from an aircraft, a 2000-pound cluster bomb releases 202 bomblets at a preset altitude, which float down on tiny parachutes and detonate upon hitting the ground. Those bomblets have the capacity to spray an area 400 feet by 800 feet with molten steel slugs designed to penetrate armor and to kill every living thing in its vicinity. An officer on the aircraft carrier the *USS Carl Vinson*, in his own understated way,

describes the effect of a behemoth bomb, especially on human beings: "A 2000-pound bomb, no matter where you drop it, is a significant emotional event for anyone within a square mile."[125] One stands in a kind of stupefied awe at such an instrument of killing, that, from as far as one mile away, can create something the military refers to as "a significant emotional event."

Cluster munitions have a high failure rate, making them more lethal than ordinary bombs. After they explode, cluster munitions leave on the ground many of their small, undetonated bomblets, which go off whenever a person or animal or child happens to touch one, or accidentally brushes against one.[126] Most munitions have a failure rate of 3 percent. The Pentagon ascribes a "conservative dud rate" of 5 percent to its cluster munitions. Human Rights Watch reports a failure rate for cluster munitions as high as thirty percent.[127] Given the killing nature of military hardware, that high failure rate seems deliberate, an integral part of the design of cluster bombs, makes them function more like landmines than ordinary bombs.

Thus, cluster bombs behave somewhat like Depleted Uranium, releasing their allotment of death over a long period of time, turning grazing fields and agricultural plots and picnic spots into places of fright and fear, where, at any moment, ordinary unsuspecting Iraqis can unexpectedly find themselves blown into bits. Marc Galasco, the senior military analyst at Human Rights Watch, abhors the military's use of cluster bombs, more even than its willingness to use weapons loaded with depleted uranium: "The single greatest risk civilians face with regard to a current weapon is that is in use."[128] Galasco wants to see them outlawed, and wants the United States to lead the way.

Reports on the air war rarely make the news, and when they do appear, they mainly repeat military propaganda and announcements about air strikes. Thus, many of the details and most of the numbers about the air war in Iraq remain secret. Few if any news agencies report on cluster munitions. That's why the Mennonite Central Committee—which has studied cluster bombs for more than thirty years—filed a Freedom of Information Act request for disclosure of

the military's use of cluster bombs since the end of major combat operations in Iraq. In its response to the Mennonites, the Air Force confirmed that "63 CBU-87 cluster bombs were dropped in Iraq between May 1, 2003 and August 1, 2006. These 12,726 BLU-97 bomblets...dropped since May 2003 do not include, according to statistics provided by Human Rights Watch, almost two million cluster sub-munitions used by coalition forces in Iraq in March and April 2003."[129]

Air Force officials acknowledge that the US and coalition aircraft dropped at least 111,000 pounds of other types of bombs in Iraq in 2006. This does not include guided or unguided missiles, unguided rockets, or cannon rounds. It also does not include the munitions expended by the Marine Corps and other coalition fixed-wing aircraft or any Marine helicopter gun ships. Finally, the figure does not include any munitions fired by the helicopters operated by the private contractors carrying out their mercenary work in Iraq.[130]

No military official seems willing to talk about the exact number of cannon rounds fired by helicopters. Colonel Robert A. Fitzgerald, the Marine Corps' head of aviation plans and policy, did, however, speak in general terms about the subject in *National Defense Magazine*, early in 2007. He said that, in 2006, "Marine rotary-wing aircraft flew more than 60,000 combat flight hours, and fixed-wing platforms completed 31,000. They dropped 80 tons of bombs and fired 80 missiles, 3,532 rockets and more than 2 million rounds of smaller ammunition." I am assuming, by the magnitude of the numbers, that Colonel Fitzgerald did not limit his remarks to Iraq.[131]

All of the military's missiles and bombs derive their percussive impact from a mixture of 80 percent TNT mixed with 20 percent of atomized aluminum powder—a fire intensifier, which works by increasing the speed at which the explosive reaches its maximum pressure. The entire lethal mixture is known as tritonal. Over 647 pounds of tritonal, for instance, provide the explosive force for the 4,700-pound Bunker Buster.[132]

The largest bomb, an air to surface missile, which goes by the designation GBU-43B, or more affectionately as MOAB, the Mother Of All Bombs, carries 21,600 pounds (over 10 tons) of TNT mixed with aluminum powder. The MOAB is the largest-ever, satellite-guided, air-delivered bomb in history. The MOAB's destructive force so terrified Iraqi troops in the first Gulf War that they referred to its effect in a most portentous image: "steel rain."[133]

Aluminum powder can be very toxic, causing a potentially serious lung disease, pulmonary fibrosis, which in severe cases, can lead to a drawn-out painful death. Some studies have suggested a connection between exposure to high concentrations of aluminum dust with Alzheimer's disease and other neurological disorders. While the International Agency for Research on Cancer has determined that prolonged exposure to aluminum flake is carcinogenic to humans, the Pentagon argues that aluminum dust carries no long-term health risks and thus refuses to undertake any studies.[134]

In fact, after persuading Congress to exempt the military from the nation's wildlife protection laws, the Pentagon is now pushing its "Readiness and Range Preservation Initiative," which seeks immunity from three important and fundamental federal laws: the Clean Air Act, the Resource Conservation and Recovery Act, and the Superfund Law. Which is to say that the Pentagon seeks to exempt itself from laws regulating air quality, hazardous waste, and toxic cleanup, in spite of the fact that it offers no evidence to support its claim that existing statutes hinder military readiness. Karen Wayland, legislative director at the Natural Resources Defense Council, takes offense at the Pentagon's reasoning: "The Pentagon's push for blanket exemptions from federal health and pollution cleanup safeguards makes a mockery of national defense. Using national security to sacrifice our nation's environmental security will endanger our health, leaving us less safe."[135]

Before these bombs can explode, they have to arrive at their targets. For that they need fuel. Which, quite obviously, produces even more pollution. The Department of Defense holds the distinction as

the single largest polluter in the United States, not only, as I pointed out earlier, because of its consumption of fuel and discharge of explosives. The DoD also holds the distinction as pollution champ because of its manufacture of solid rocket fuel, which uses a highly toxic explosive ingredient called perchlorate, and which has leaked in varying amounts from military bases and defense and aerospace plants in over twenty-two cities in this country. The DoD program for cleaning up perchlorate includes 28,000 currently or formerly contaminated sites in every state and territory, as well as locations in other countries.

The United States Centers for Disease Control concluded that percholorate has severely contaminated this nation's food and water supply, including much of the lower Colorado River. The National Academy of Sciences (NAS), in its report of the human health hazards of perchlorate, found excessive amounts of the chemical in ninety-three percent of lettuce and milk it tested.[136] In samples of breast milk taken randomly from around the US, ninety-seven percent of women tested positive for perchlorates—an example, in this country, of the poisoning that we can attribute to military waste coursing through the very heart of the food chain.[137]

The NAS determined that perchlorates are roughly ten times more toxic to humans than the DoD has been claiming, and can inhibit thyroid function by limiting its uptake of iodide. Continual disruption of the thyroid gland can cause birth defects, lower IQs, and expose infants and young children to highly serious health risks. Of course, when all those rockets explode in Iraq they release, among numerous other pollutants, that very same, highly toxic perchlorate. I can find no agency that has tested for the presence of perchlorate in the water supply in any place in Iraq, in the milk of Iraqi mothers, or in the blood streams of Iraqi adults or children.

Closely related to the toxic effects of aluminum powder and perchlorate is the military's quite shocking use of its new version of napalm. The British newspaper, *The Independent*, reported on August 10, 2003, that "American pilots dropped the controversial incendiary agent napalm on Iraqi troops during the initial advance on Baghdad.

The attacks caused massive fireballs that obliterated several Iraqi positions." The same article also pointed to its use in March and April of 2003, "when dozens of napalm bombs were dropped near bridges over the Saddam Canal and the Tigris River, south of Baghdad." A reporter from the *Sydney Morning Herald*, Lindsay Murdoch, bore witness to one of those fire bombings: "Safwan Hill went up in a huge fireball and the observation post was obliterated. 'I pity anyone who is in there,' a Marine sergeant said. 'We told them to surrender.'" The United States Department of Defense denied the use of napalm during Operation Iraqi Freedom, insisting that "we completed destruction of our last batch of napalm on 4 April, 2001."

Technically, the Department of Defense spoke the truth. The United States did not drop napalm, which consists of a mixture of fuel and a polystyrene-like gel that causes it to stick to people's skin as it burns, and proves nearly impossible to remove or to extinguish. Napalm derives its name from a formula of naphthalene combined with palmitate. Incendiary munitions kill, in a most ruthlessly painful way, by immolation and, because they emit a large amount of carbon dioxide, by asphyxiation, as well.[138] A 1980 United Nations convention banned the use of napalm against civilian targets. The United States, which did not sign the treaty, is one of the few nations that uses napalm, which it employed most notably in Vietnam, and which has come down to us in that one well-known and vivid photograph of a young girl running down a dirt trail, her flesh burning off her body.

The Pentagon based its denial, it turns out, on a technicality. The United States military currently employs an incendiary weapon called the Mk-77 Mod 5 Firebomb, which is identical to the earlier and standard Mk-77 napalm weapon—Napalm B—but instead of using gasoline and benzene as fuel, the new edition uses a kerosene-based jet fuel, reformulated using a smaller concentration of benzene. These new and improved incendiary weapons each weigh about 510 pounds and consist of 44 pounds of the polystyrene-like gel and 63 gallons of jet fuel. In a strange twist of language, the military claims that the

new napalm is less harmful to the environment. I assume military leaders do not include human beings in the environment category. Aside from carbon dioxide, which the Clinton administration had classified as a pollutant, the Pentagon remains mum about the possible pollutants from napalm. In fact, the Bush administration has removed CO_2 from its classification as a pollutant, providing a boon to both the manufacturers of automobiles and munitions.

What the Pentagon does not say is that the addition of oxidizers to the new formula makes the goo even more lethal than the old napalm, by making it harder to remove from the flesh. And so, even though this incendiary weapon attaches to the flesh and burns and burns, because of its recast formula, the military insists that no one should rightfully call this improved horror napalm. That name, the official version of napalm, and the gruesome photographs associated with its use, have already been taken. This new weapon will, of course, generate its own images of terror.

Thus, General Tommy Franks would make George Orwell proud. The former Commander of CENTCOM traffics in the best (or worst) of Newspeak. In an early report that the military had used napalm in Tora Bora, Afghanistan, in the pursuit of Osama Bin Laden, General Franks responded, "We're not using—we're not using the old napalm in Tora Bora." Again, General Franks spoke the truth—up to a very limited point. Yes, the military did not use the old napalm, but he neglected to add that the Army was using the newer version of napalm. John Pike, Director of the military studies group *GlobalSecurity.org*, reaches the following reasonable conclusion: "You can call it something other than napalm but it is still napalm. It has been reformulated in the sense that they [the US military] now use a different petroleum distillate, but that is it. The US is the only country that has used napalm for a long time. I am not aware of any other country that uses it."

Tommy Franks aside, Marine Corps fighter pilots and commanders, who have returned from Iraq, admitted to dropping dozens of firebombs on bridges over the Saddam Canal and the Tigris River.

"We bombed both those [bridge] approaches," Colonel Randolph Alles said in an interview. Alles commanded Marine Air Group 11, during the initial invasion, and offered this brief, cryptic statement: "Unfortunately, there were people there because you could see them in the cockpit videos. There were Iraqi soldiers there. It's no great way to die."[139] "Most of the world understands that napalm and incendiaries are a horrible, horrible weapon," says Robert Musil, Director of the group Physicians for Social Responsibility. "It takes up an awful lot of medical resources. It creates horrible wounds." Musil went on to say that the Pentagon's insistence on different kinds of napalm indeed make the discussion "Orwellian. They do not want the public to know. It's a lie."

How many of those new firebombs did we drop? According to a letter from the UK Minister of Defense to former Labour MP Alice Mahon, the 1st Marine Expeditionary Force "used a total of 30 MK 77 weapons in Iraq between 31 March and 2 April 2003."[140] Lindsay Murdoch, the reporter from the *Sydney Herald*, who traveled with a Marine unit those first few days of "Shock and Awe," offers the following devastating account of the Marines' seemingly indiscriminate use of the new napalm: "Marine Cobra helicopter gun ships firing Hellfire missiles swept in low from the south. Then the Marine howitzers, with a range of 30 kilometers, opened a sustained barrage over the next eight hours. They were supported by US Navy aircraft which dropped 40,000 pounds of explosives and napalm, a US officer told the *Herald*."[141]

We already know napalm's brutal effect—or whatever we choose to call this most recent firebomb—on human beings. Incendiaries give off large amounts of carbon monoxide as they ignite, causing people to pass out and burn. What is the effect on the environment of tens of thousands of pounds of burning jet fuel and benzene—on the water supply, the vegetation, the air, on the probably thousands of frightened and disoriented animals? Who knows? What we have here is just one more of those incalculable costs of waging war against a so-called vicious enemy, who will stop at nothing to kill us all off.

The cost, in money or in lives or in pollution, simply does not seem to matter to those in authority. Killing is paramount. The means, no matter how brutal, always justify that one end. Under such conditions, it is difficult to take seriously a category called collateral damage. The overwhelming majority of the destruction and devastation—to both buildings and humans—is absolutely direct and deliberate.

One more controversial weapon, also banned by several international treaties, is white phosphorous. The military is not supposed to use WP, as they call it, on human targets, only as a way of illuminating the nighttime battlefield. But the Pentagon admitted to using WP as an incendiary weapon in 2004 in its assault on Fallujah. Colonel Barry Venable said that white phosphorous he had ordered was used to dislodge the enemy from its entrenched positions. A documentary made by the Italian television broadcast system, RAI, and titled *Fallujah, The Hidden Massacre*, made the case that Iraqi civilians, including women and children, had died of burns caused by WP during that same Fallujah assault. Military spokesmen have denied its use. Three artillerymen, who took part in the battle of Fallujah, wrote an article in *Field Artillery* magazine in the March/April 2005 issue in which they say the following: "WP proved to be an effective and versatile weapon. We used it for screening missions...and, later in the fight, as a potent psychological weapon against insurgents in trench lines and spider holes...We fired 'shake and bake' missions at the insurgents using WP to flush them out and high explosive shells to take them out." ["US Forces Used 'Chemical Weapons' in Iraq" *The Independent*, 16 Nov. 2005

On contact with the skin, white phosphorous burns at a fairly high temperature and proves almost impossible to extinguish. Water only speeds up the burning process. Doctors typically cut out the phosphorous from the skin. Once it enters the skin, it can cause severe damage to the heart, lungs, and kidneys, and eventually can prove fatal. The EPA has classified it as a serious air pollutant. Inhaling its heavy smoke can also prove dangerous, and in some cases, can cause bone deterioration. A University of Maryland study, conducted in

1983, reported on the deaths each year of thousands of ducks, geese, and swans at Eagle Falls, Alaska. They died from water contaminated by white phosphorous that leeched from several local military bases.

We have stepped behind the pollution numbers here to examine the military's means of killing. In many of the instances—maybe in all—the means reveal even more horror than their possible results. How can we ever again call ourselves a nation of concerned citizens? The atrocities at Abu Ghraib, almost all but forgotten now, divert our attention from the larger, ongoing, and invisible horror, that is, from the war itself and, perhaps more important, from the engineers who devise and direct those wars in Iraq and Afghanistan.

VII
THE FATE OF THE EARTH

If, as some war critics say, the United States invaded Iraq to secure its oil, thus, in the logic of war, reducing our dependence on foreign oil, I have tried to show in this essay that, in trying to achieve that goal, the United States has certainly consumed and spilled and burned a tremendous amount of that precious stuff. Martin Luther King got it right forty years ago, and it is just as right today. America also triggered a release of greenhouse gases of crisis proportions. It should come as no surprise that invasions prompt retaliations, what Chalmers Johnson calls "blowback." And so, when Iraqi troops moved out of Kuwait at the end of Gulf War I in 1991, they set fire to Kuwait's oil fields. (If it's that precious, sabotage dictates, then destroy it.) Oil accounts for 95 percent of Kuwait's export earnings.

The Iraqis set ablaze more than 600 wells, many of them burning continuously for 9 months or more. It amounted to between 5 and 6 million barrels of oil that went up in smoke, along with 70–100 million cubic meters of natural gas. Smoke clouds covered an enormous 10,000 square miles, blocking out the sun, and reducing temperatures

by 18° Fahrenheit. A thousand people died of acrid smoke inhalation. The fires released some 300 million tons of CO_2 into the atmosphere. That's 600 billion pounds of greenhouse gases! The fires also released sulfur dioxide, nitrous oxide, hydrogen sulfide, hydro-carbons, and soot. (Soot translates as solid particles embedded in tar.) About 60 million barrels of oil leaked into the ground, poisoning 40 percent of the groundwater. Another 6 million barrels (120 million gallons of fuel) also leaked into the sea, causing the largest oil slick ever recorded, destroying large portions of the local fish, bird, and mammal population.[142] Prawn fishing ended forever.[143]

One thing at least seems clear. No American president can afford to have Congress ratify the Kyoto Accords and still wage the kind of carbon-assault for which the United States has become famous. Today's brand of warfare, especially, just relies too heavily on staggering amounts of oil; it produces too much greenhouse gas to ever willingly constrain itself with any kind of treaty. The military can brook limits of no kind whatsoever. It cannot even withstand scrutiny of any kind. The Pentagon conducts its business behind very thick and very closed doors. It writes its own rules and either follows them or violates them, depending on the situation. And so the beat goes on. Very few people in positions of authority, both in and out of government, have the temerity to criticize even the smallest part of military operations. Patriotism will not allow it. Standards of good citizenship will not permit it. Tradition forbids it.

For fiscal 2009, George Bush proposed, for the Pentagon, an 8 percent increase of 36 billion dollars, on top of the 624.6 billion dollars already in the defense spending for 2008. On June 30, 2008, Bush signed legislation for an additional 162 billion dollars, to pay for the wars in Iraq and Afghanistan, and hailed the vote as a rare bipartisan move, as if, finally, government was working. That legislation brings the amount Congress has voted since the war on Iraq began to more than 650 billion dollars, not counting the 200 billion dollars for the war in Afghanistan.[144] That amounts to roughly 110 billion dollars for each of the 6 years we have been in Iraq, or 9 billion dollars each

year. That's just for Iraq. In 2007, the Pentagon spent 17 billion dollars. The Nobel economist Joseph E. Stiglitz suggests that with all costs factored into the cost of the war—including medical treatment for returning vets—Iraq will cost us all, finally, at least 2 and maybe even 3 trillion dollars to produce the kind of devastation—human and otherwise—that I have tried to document in this essay.[145]

And yet, if we can believe the results of some Gallup polls, conducted during the week of June 6, 2007, Americans seem to trust the military three times as much as they trust the President of the United States, and five times more than their elected representatives in Congress. The poll asked a sample of people to respond to the following statement: "I am going to read you a list of institutions in American society. Please tell me how much confidence you have in each one: a great deal, quite a lot, or very little." The results: 39 percent of the people said they had a "great deal" of trust in the military; 23 percent said they had a great deal of trust in the police; 14 percent in the supreme court; 12 percent in the President; 7 percent in the criminal justice system; and, at the bottom of the list, just 4 percent of the people had a great deal of trust in Congress. Another 30 percent said they had "quite a lot" of trust in the military. That's 69 percent of the people asked, then, that had a great deal or a quite a lot of trust in the military. What do they actually trust? The Bush Administration had people so scared, it appears, they felt that they had to believe in the military. They had no other choice. And since most Americans pay no direct sacrifice for that huge military, or for the wars, they simply want it. They think they need it to keep them safe and secure. It's like wanting to be an atheist, but wondering, my god, what if?! And so, no matter all the protests on the streets, and all the posturing in Congress, after six years of what many people agree is the worst and most grotesque mistake in the history of this country, the military rolls on and on in Iraq—in a different form and different configuration, perhaps—but it continues its monstrous presence on some of the largest US military bases in the world.

Such public compliance helps feed the beast. The military's gigantic maw opens wide to consume more and more fuel, using up more and more money, all the while wasting more and more lives, and helping to destroy the environment at a rapid clip. A great many citizens believed that a Senate with even a slight majority of Democrats could put a stop to the war. But, the war continues—supported by a continuing round of debates and discussions that give the appearance of honest and sincere argument, followed always by another round of funding. And Obama picks up the chant, promising in his tenure to kill Osama Bin Laden, as if that would put an end to anything significant. And, as we know, Obama has pledged to send two more battalions into Afghanistan and made that one of the first orders of business on his first full day in office. And, we have not heard his plans for Pakistan—not yet.

As I said, some so-called Green Hawks now take the position that the military must support the environmental revolution, developing, for instance, a more energy-efficient fighting machine, or working on synthetic fuels that pollute much less. But, to repeat, that's just so the armed forces can move faster over longer stretches of terrain, allowing combat units to decimate even more land, to wipe out even more plants and animals and humans, at a much faster rate. But, then, PR is of utmost importance. And so, even James Woolsey, the former director of the CIA and a devout Iraqi hawk, has learned to look like an environmentalist. He now drives a Toyota Prius, with two more hybrids on order. He admits to making a geopolitical point, not an environmental one: Let us not be so dependent on the Muslim theocracies for our oil, he proudly declares.[146]

In an attempt not just to be greener but kinder and gentler, the Air Force Research Laboratory has been working on new munitions it calls the Dense Inert Metal Explosive (DIME). The Air Force developed the new device in response to complaints that bombing in urban areas creates civilian casualties, more commonly known as collateral damage. DIMEs are 250-pound bombs that, instead of using metal casings, use a carbon fiber that turn into dust rather than show-

ering a wide area with dangerous fragments. Filled with explosives mixed with a heavy-metal tungsten alloy, the DIME bomb explodes into billions of pieces of super-heated micro shrapnel—an incredibly destructive blast in a small area, or what the military calls "focused lethality."

DIME munitions carry horrific side effects. Several studies have shown that shrapnel of HMTA (heavy metal tungsten alloy) has caused cancer in laboratory rats. I know the usual comment that rats are not people, but, in this case, all ninety-two rats implanted with tungsten alloy contracted a rare cancer called rhabdomyosarcoma within five months. Other studies point out that tungsten can damage the immune system, and attack the body at the level of DNA, and hence belongs in a class called genotoxics. Rory McCarthy, writing in the *Guardian*, in October 2006, interviewed several physicians who said Israel used the DIME weapon in its bombardment of Gaza. (The United States sold those weapons to Israel.) With the Air Force playing a larger role in Afghanistan, we can expect to see America's use of such focused lethality in that country.[147]

What to do? Certainly, citizens cannot require the military to file an Environmental Impact Report whenever it decides to invade a country, or demand it pay for carbon offsets, or enact carbon caps, or plant millions of trees around the world to mitigate its rampant pollution. At the very minimum, however, I would ask that a fair calculation of military greenhouse gases—from land vehicles, planes, helicopters, ships, and munitions factories—be added to the total that this country annually produces, and that that number get factored into the actual and total cost of waging war. As citizens, we have a right to know those figures. We need to be informed. On the model of body counts, why not tabulate daily carbon outputs in Iraq and Afghanistan? Also, people seem to turn against war when it grows too expensive, either in soldiers lost or in dollars spent. If we can turn more Americans against war with transparent accounting disclosures, more power to the truth.

We also need a more honest accounting of all the petroleum products that the military consumes each day, not just a portion of them. Then we might be able to reach a more accurate reckoning of the carbon damage to the globe; we might then see how big a boot the military places on the ground. We need to factor into the war the cost of trying to put the environment back in order after we have contaminated it—indeed, why not include the land and the animals and the lakes in the infrastructure costs when we talk about rebuilding Iraq? Such reimbursements have a limit, of course, for how can we restore the imagination and the innocence of Iraqi boys and girls? How can we bring childhood back? How can we bring back to life any American GI? Obviously, we cannot.

In the end, we can achieve absolutely no meaningful rebuilding of Iraq, for the human infrastructure, along with its land and plants and animals and air, has been thoroughly and perhaps forever compromised. After all, as I have said, the depleted uranium isotope has a half-life of 4.5 billion years; and thus we Americans—all of us—have degraded the Iraqi people for millennia to come. I do not know if they can ever recover, if they can ever again call themselves Iraqis. I cannot imagine what they will wind up calling us Americans.

How can we find a category, or set a dollar amount in determining the cost of malformed fetuses? Those terms we now so easily throw about—"surgical strikes," "precision bombing," and "collateral damage"—need redefining, especially when we consider the new DIME munitions, for we have managed, with our new weapons, to contaminate the entire population of Iraq, no matter age, gender, or tribal affiliation. Under the mechanized hatred and evil that we call war, every single Iraqi constitutes collateral damage—and the children those Iraqis dream of having, well, they too have turned into collateral damage. The most shocking and silent horror here may be that we have laid waste to the people and the land and the animals with the careful deliberation of a highly skilled surgeon. Military leaders are surely aware of not just everything they destroy, but also the cruel and painful and tortuous way they kill things off. Otherwise, they

would not ask for more and more lethal weapons. We reserve the word "torture" for Abu Ghraib and Guantanamo, but that's what has been going on for nearly six years throughout the whole of Iraq.

People used to tell a funny story not so long ago: since TV waves take some time to travel through space and not much seems to interrupt them, if there is life on Mars then those creatures are now watching *I Love Lucy*, and not in re-runs. Likewise, since CO_2 takes ninety years or more to dissipate fully from the atmosphere, hovering high above our heads are greenhouse gases from the Vietnam War, Kosovo, various Israeli bombings of Gaza, and, of course, Gulf War I. One can find traces of World War II and, if you look closely enough, even some scant fallout that still persists from World War I. But those earlier layers of pollution are like short stories compared with the monstrously long and dense novels that are Iraq and Afghanistan. Technological improvements in warfare have made contemporary pollution more varied and frightening, and certainly much more lethal. Pollution is an instance of the Hermetic principle of "as above, so below," except reversed: the actions we take down here on the land reverberate up in the skies. We kill down here and simultaneously destroy up there.

Whether you believe strongly in the reality of global warming, or only half-heartedly embrace the idea, the emerging data seem incontrovertible, that the earth simply cannot absorb any more serious CO_2 pollution. It certainly will reach its limit much faster than any scientist has argued given the rate at which the military pollutes in Iraq and Afghanistan. To repeat an earlier point: Even if every person, car, and factory in the world stopped generating greenhouse gases this moment, the military is still propelling us to the very brink of disaster—and indeed over the edge. And yet, in his final months in office, what did the President of the United States, George W. Bush, set his sights on?—The development of a new hydrogen bomb.

Indeed, if scientists are correct in telling us that we must reduce the burning of fossil fuels by seventy percent now just so that the atmosphere can return to normal levels in the next several decades,

would not ask for more and more lethal weapons. We reserve the word "torture" for Abu Ghraib and Guantanamo, but that's what has been going on for nearly six years throughout the whole of Iraq.

People used to tell a funny story not so long ago: since TV waves take some time to travel through space and not much seems to interrupt them, if there is life on Mars then those creatures are now watching *I Love Lucy*, and not in re-runs. Likewise, since CO_2 takes ninety years or more to dissipate fully from the atmosphere, hovering high above our heads are greenhouse gases from the Vietnam War, Kosovo, various Israeli bombings of Gaza, and, of course, Gulf War I. One can find traces of World War II and, if you look closely enough, even some scant fallout that still persists from World War I. But those earlier layers of pollution are like short stories compared with the monstrously long and dense novels that are Iraq and Afghanistan. Technological improvements in warfare have made contemporary pollution more varied and frightening, and certainly much more lethal. Pollution is an instance of the Hermetic principle of "as above, so below," except reversed: the actions we take down here on the land reverberate up in the skies. We kill down here and simultaneously destroy up there.

Whether you believe strongly in the reality of global warming, or only half-heartedly embrace the idea, the emerging data seem incontrovertible, that the earth simply cannot absorb any more serious CO_2 pollution. It certainly will reach its limit much faster than any scientist has argued given the rate at which the military pollutes in Iraq and Afghanistan. To repeat an earlier point: Even if every person, car, and factory in the world stopped generating greenhouse gases this moment, the military is still propelling us to the very brink of disaster—and indeed over the edge. And yet, in his final months in office, what did the President of the United States, George W. Bush, set his sights on?—The development of a new hydrogen bomb.

Indeed, if scientists are correct in telling us that we must reduce the burning of fossil fuels by seventy percent now just so that the atmosphere can return to normal levels in the next several decades

then surely we must see the obvious: We must put a stop to war. In the twenty-first century, given the precarious state of this planet, we must begin to see war as an outmoded method of solving political problems, real or imagined, actual or trumped-up. As stewards of the earth for these many millennia, who can praise us? Or even give us passing marks? But at least millions of ordinary citizens around the world have now begun to recognize the enormity, not of the problem—that word comes from a simpler time—but of the *crisis*. As responsible citizens, as politicians, as parents, as students and teachers, we must begin to fold into the conversation about our deep-seated fear of "terrorism" the more deep-seated illness of the planet. We have turned the so-called war on terror into a war on *terroir*—a war on the earth.

Perhaps we all accepted war more easily when we viewed the earth as more vigorous, a time long before we began to hear of polar bears drowning, ice caps melting, sea levels rising, bees disappearing, penguins and walruses dying, Iraqis turning radioactive, and on and on. If our politicians cannot find a way to end our long-standing fascination with war—and such a move seems highly unlikely—then the earth is going to do it for us. For all of us. The planet is now speaking the truth to anyone who will listen: settle your problems with diplomacy, or you will have nothing left to negotiate. After centuries of dissipated living, we have left ourselves with no other choice. Global warming trumps all other crises. And, unlike most so-called crises up to this point, we cannot buy our way out of this one. The tactics of capitalism, even the lure of green capitalism, just will not work. In fact, a capital economy exacerbates this particular crisis. Likewise, we cannot engineer our way out this one. Technology will not, as it has so often in the past, come to our rescue. And, besides, technological solutions often behave like medical solutions, creating side-effects that require people to call in ever more technology to fix the newly created problem. And the cycle goes on and on.

Opinion polls indicate that over seventy percent of Americans believe that as a society we should do "whatever it takes" to protect

the environment. According to a study undertaken by the Yale Center for Environmental Law and Policy, and made public in March 2007, eighty-three percent of Americans view global warming as a "serious problem—up from seventy percent in 2004." Those numbers cut across political lines. Some right-wing evangelicals, for instance, have joined with liberals and progressives in addressing the crisis of global warming, most prominently the Reverend Richard Cizik, the longtime lobbyist for the National Association of Evangelicals. Risking being reviled by his fellow Christians, especially Jim Dobson of Focus on the Family, Cizik insists that "it's time we return to being people known for our love and care of the earth and our fellow human beings."[148]

It is the one subject, the fate of the earth, that, in this country offers the chance of generating any real communitarian action. The civil-rights movement of the 60s provides an historic example of the way that, in America, disparate people can at times come together to grapple with and solve critical, seemingly insurmountable social problems. And that is the spirit, multiplied 10 thousand-fold, that we will need if we hope to make it out of the polarized world in which we now live. A Coalition of the Willing acts quite differently and thinks quite differently from a Community of the Concerned.

Mark Hertsgaard, an independent journalist and author, who writes about climate change, points out that "environmental justice groups like West Harlem Environmental Action are developing real political clout while proving that affluent white people aren't the only ones who care about clean air and water. And there has been an explosion of student activism, particularly around global warming."[149] For our survival, we will need to see hundreds of thousands of people, perhaps even millions, with their various attitudes and ideas about saving the environment, filling the streets, marching and chanting and demanding an end, not just to the wars in Iraq and Afghanistan, but also to all wars anywhere and everywhere—now and in the future. The anti-war movement must become a No-War movement working alongside those who believe that, if we act now and with determina-

tion and without equivocation, it may still be possible to live on this planet decades and even centuries from today.

Citing morgue and hospital statistics across Iraq, the United Nations reported, in January 2007, that an average of ninety-four Iraqi civilians died each day in the war in 2006. The UN says that those numbers were running at double the number for 2005.[150] Roughly every fifteen minutes, another Iraqi human being—a mother or father, a brother or sister, a husband or wife, a son or daughter—died. Roughly every fifteen minutes, another loved one was ripped from a house, or torn from a family. As awful and grim as that sounds, when global warming takes its full effect, we can expect geologic changes of historic proportions, particularly at the equator, especially among poor people, and deaths in numbers we have never before witnessed. As I say, the poorest people, those least able to withstand severe change, will be hardest hit—dry lands most profoundly affected. Remember: two-thirds of the continent of Africa consists of dry land or desert.

Because of changing weather patterns caused by global warming, millions of sub-Saharan Africans may find themselves starving to death. As the rate of desertification accelerates, UNESCO predicts that, from 1997 to 2020, an astonishing 60 million Africans will have migrated to places like North Africa and Europe in search of food and water.[151] Global demand has already depleted many of the rivers in Africa of their fish. The world will divide even more than it does today between the haves and the have-nots. More important, the United States will not give up its top-tier position, and it will need more and more oil to keep this first-world machine grinding away at its maximum capacity. The overwhelming majority of Americans enjoy a comfortable way of life, and they will not easily or willingly give up their luxuries.

The national security think-tank, the CNA Corporation (Center for Naval Analysis), of Virginia, brought together a group of eleven three- and four-star retired admirals and generals, to form a Military Advisory Board, which issued a thirty-five-page report titled "National Security and the Threat of Climate Change." In it, those

military professionals describe global warming with a strange sounding name, a "threat multiplier," particularly in "already fragile regions." By "threat multiplier," they mean a threat to that comfortable way of American life so many of us know so well. They indicate that the next thirty or forty years will see intense wars over water and food supplies: "Weakened and failing governments, with an already-thin margin for survival, foster the conditions for internal conflicts, extremism and movement toward increased authoritarianism and radical ideologies. The US will be drawn more frequently into these situations."[152] I guess by "drawn more frequently into these situations," military experts mean that we Americans, above all others, will have to defend ourselves, since those experts know only too well that Americans have no desire to see their way of life diminished.

Our occupation of Iraq may thus be a mere dress rehearsal for the really big performance: the safeguarding of America's precious commodities—food and water—of which we have, over the centuries, taken our disproportional share. We are now trying to secure that other precious commodity, oil, in the Middle East. When all is done—when we have it all—then perhaps we will all find the safety and security that the US government claims to be so desperately seeking. By then, we will be fairly alone on a fast-dying planet.

A good many Americans believed Bush's argument following 9/11 about the connections between al Qaeda and Iraq. Six years later, polls indicate that the majority of those same people have grown more wary, and more weary—Bush may even be greatly responsible for making them feel that way. We need to start telling a new story, one that describes the overwhelming majority of the earth's population, not at odds with each other, but moving ever closer and closer together. Climate change is a global issue, and thus only a truly vast communitarian spirit can confront the vastness of its dreaded fallout. What stops some congressional leaders from voting for immediate withdrawal from Iraq is the fear of even greater ensuing chaos. But imagine the chaos in Iraq, facing the most significant global challenge in history, with its infrastructure and fertile land fairly well destroyed.

Much of the world underwent retooling to prepare for the electronic revolution in the 80s and 90s. America led the way. If the world is to survive even the least dire predictions of global warming, people will have to entertain a new kind of retooling. America can assume its position again as world leader by showing a new and more intelligent way to live on the planet.

The neo-cons have had their day; but a question remains about just how much their ideas have permeated the thinking of the general population. They may be gone, I would argue, but they have left behind a precise and dangerous way of looking at global issues. Richard Perle, chairman of the Defense Policy Board, made up of a group of advisers to the Secretary of Defense, and David Frum, former speechwriter for George W. Bush, wrote a book titled *An End To Evil*. In that book, the two authors give us the following astonishing sentence: "There is no middle way for Americans: it is either victory or holocaust." Odd, I think, for two Jews to toss around the word holocaust so freely. But that's exactly what they see: A world peopled with those who think and act and live like us, or absolute extermination of the entire human population.

They never entertain the possibility, which many experts now believe, that too many people in positions of authority greatly exaggerated the importance of al Qaeda. Tariq Ali, for instance, in his new book *The Duel: Pakistan on the Flight Path of American Power*, points out that al Qaeda "unleashes sporadic terror attacks and kills innocents, but it does not pose any serious threat to U.S. power," and then goes on to provide substantial evidence for his position. Likewise, Bruce Riedel, in *The Search for al Qaeda: Its Leadership, Ideology, and Future*, argues that al Qaeda has no real following in the Muslim world and stands no chance of taking over a single Muslim country.

But Perle and Frum persist in seeing the world one way only, arguing that, faced with utter extinction—not from severe changes in climate, but from Muslim extremists—why wouldn't we do anything, follow any policy, no matter how extreme it might appear or how thoroughly it might erase another country or population? We can-

not remain strong without a powerful and mighty military. Indeed, we cannot achieve peace without such a military. Should you somehow miss their point, Perle and Frum let you have it right between the eyes: "A world at peace will be brought into being by American armed might and defended by American might, too."[153] Perle and Frum never ask the obvious: What if we pick up arms and there is no one left to shoot?

In a very real sense, our foreign policy under the Bush administration took much that shape: Bring 'em on and on until no one of them is left standing or, in more polite Washington terms, taking the fight against terrorism to the enemy. It is fair to ask just what his policy of pre-emption has accomplished. Our occupation of Iraq has created more and more religious extremists. It has turned a good deal of the Middle East against us. It has destabilized places like Pakistan and Iran and Saudi Arabia. And, in the end, it has turned this nation into a corporation that has entered deeply into Chapter Eleven bankruptcy. We have gone well beyond our budgetary surplus; we are deeply in debt, which we have now, at least tacitly, agreed to pass on to several generations to come. And the greatest surprise of all: we are no safer, no more secure, than we were on September 11, 2001, when all the war-time horror began.

But we should not consider the war in Iraq as an oddity, an aberration in our great history of successful wars. That we found no weapons of mass destruction should surprise no one, for each war has its own crystallizing event—its rationale—that raises ire in Congress and gets sold as fear to the public. Each war has its equivalent of the evanescent but deadly weapons of mass destruction. The war in Iraq simply brought the issues that war always generates into a crisp focus. For one thing, we were enabled to see the stupidity of war up close because so many inept bureaucrats ran that particular administration, and its salesmen and women could not articulate a consistent policy over time. But such unnecessary killing, such duping of the public, has fueled war in this country since its inception. We need only remember the supposed naval crisis in the Gulf of Tonkin, in 1964, that

triggered the Vietnam War, a protracted and ugly war that just wore on and on, resulting in the death of 50,000 to 60,000 Americans and as many as 2 million Vietnamese, and finally lost any public backing whatsoever. And recall the trumped up reasons for the invasion of the Bay of Pigs that turned into a political embarrassment for this country.

Let us learn a key lesson from our experience in Iraq and Afghanistan. If we can put an end to war, we can then decide to put an end to an even greater impending round of terrorism—the fight, not over ideology, but over food and water. General Anthony Zinni, Bush's former Middle East envoy and one of the generals who drafted the CNA report on climate change, says it plainly: "It's not hard to make the connection between climate change and instability, or climate change and terrorism." Here's his solution: "The DoD should conduct an assessment of the impact on military installations worldwide of rising sea levels, extreme climate change..."[154] The report remains blind throughout its thirty-five pages to just the opposite problem—the impact of the military on such geologic catastrophes as rising sea levels and extreme climate change.

On March 29, 2007, the non-partisan General Accountability Office (GAO) issued a report that startled many for its frankness. It carried the title: "Crude Oil—Uncertainty About the Future Oil Supply Makes It Impossible to Develop a Strategy for Addressing a Peak and Decline in Oil Production." Just in case the title did not reveal its argument clearly enough, the GAO warned that "worldwide oil production will eventually grind to a halt and the US has no strategy in place to deal with the possible catastrophic results." Matt Simmons, the president of Simmons and Company International, one of the largest investment banks for the oil industry, decries the fact that "the industry has no new technology coming on line." He claims that oil production peaked in 2005; and that we now need "a heroic effort to awaken our country to this threat to the survival of the economy."[155] The GAO and Simmons, once again, miss the most obvious point, one to which thousands of scientists worldwide call

ır attention: the threat is not to the survival of the economy. It is to
ıe survival of the planet itself. I am reminded here of Pogo's famous
ne: "We have seen the enemy and he is us."

VIII
AFGHANISTAN

Afghanistan was payback, retaliation. Attacking Afghanistan, our President told us, presented the best chance of getting that mastermind of the attack on the Twin Towers and founder of al Qaeda, Osama Bin Laden. But, alas, he got away. Even with all that high-level intelligence and surveillance, fly-overs with jets and unmanned drones, bombing and cluster bombing and bunker busting, somehow in the ruggedness of the White Mountains in Eastern Afghanistan, Osama Bin Laden gave the Americans the old-fashioned slip.

Everything I have said about military pollution in Iraq can be said about Afghanistan, though the numbers for the latter—the number of sorties, of bombs dropped, of rockets fired, troops employed, and so on—have been, at least up to January 2009, a bit smaller. With hindsight, the invasion of Afghanistan now looks like a mere warm up, a dress rehearsal, so to speak, for that really big one—the invasion of Iraq. Indeed, many of the books about the Bush Administration point out that the planning for the take-down of Saddam Hussein had been talked about by his administration many years before those

nineteen hijackers flew their airplanes into the Twin Towers. One could argue just as well that Iraq offered just the right diversion for our failure in Afghanistan.

Almost nine years later, the United States occupation of Afghanistan has come back into the news, but grinds on for the great majority of Americans without commanding very much attention or newsprint, as the on-again, off-again, mostly forgotten war.[156] Americans turned their attention, in those moments when they did turn their attention, to Iraq. But that war has practically vanished from view. Still, after touting a lull in the violence in Iraq, the military resumed its bombing on January 10, 2008. On that morning, two American B-1 bombers and four F-16 fighter jets dropped 40,000 pounds of bombs, ten minutes south of Baghdad. Colonel Terry Ferrell, commander of the Second Brigade, Third Infantry Division, as if describing some stirring musical performance at Carnegie Hall, called the attack "an extraordinary amount of firepower." And yet that "extraordinary" event—40,000 pounds of explosives—appeared only on page eight of the *New York Times*. At one point, not so long ago, twenty tons of molten metal dropped on some village might have made the first or second or third page. Fatigue sets in fast—the economy turns sour, the election looms, the winter or the summer approaches, but more than anything else, the economy heads south. People need to eat. They need to pay bills. They need to find jobs. How can they possibly find Iraq or Afghanistan on a map? And so the world grinds on and on.

News about Afghanistan, on the few occasions when we do read about that remote place in, say, the major newspapers in this country, usually turns on our parallel war in Afghanistan against opium production. But even after seven long years, the poppy wars are not going well for the United States. Not only has the United States military failed to eradicate the Taliban, or smoke Bin laden out of his cave, but, like the Taliban, opium production—revenue from which crop helps to finance the Taliban—in spite of America's spraying and cutting and ploughing of the fields, opium production has managed to

remain robust year after year. In 2007, Afghani farmers produced record amounts of the poppy plants. Afghanistan now supplies ninety-three percent of the world's opium, the main ingredient in heroin. Opium farms may represent the one aspect of the country's environment that has not been horribly and irreparably degraded. Indeed, instead of eradicating opium farms, the war has resuscitated opium farming as one of the very few ways the Afghani people can survive economically.

While we think of the war beginning in 2001, we should bear in mind that the Afghani people have been under siege for more than three decades—three invasions from Britain, followed by a ten-year occupation by the Soviet Union, from December 1979 until February 1989. We have had a presence in that country for close to thirty years. When the Soviets finally withdrew, they left behind 1.5 million dead Afghanis, 5 million more disabled, and 5 million more as drifting, bewildered refugees.[157] For the next twenty years, Afghanistan underwent a period of tremendous civil war and unrest. Various factions occupied and then lost control of the capital city, Kabul. The United States supported one of those violent factions, the Mujahideen, with money and rocket launchers and grenades to help oust the Soviets—support that remained covert until the mid-1980s. But that aid accomplished America's goal, at least for a short time: The Mujahideen held a tight grip on Kabul until 1996, at which moment the Taliban took control of the capital city.

One terrible side effect from that protracted civil war is that Afghanistan now holds the distinction as the most heavily landmined country in the world. One estimate, by the United Nations Mine Action Program, places the number of landmines buried by the Soviets throughout the country at 10 million, which each day wound or kill, on average, three people—many of the victims young children, who had the misfortune of playing in the wrong open field. To the number of landmines scattered across the country from previous wars, we must add the unexploded cluster bombs (CBU-87) that the United States has dropped on that country over the last seven and a

half years. The United Nations Mine Program places that number at a staggering 25,000.

As we have seen in the section on Iraq, human rights groups have almost universally condemned the use of cluster bombs as inhumane weapons (though I think the distinction between humane and inhumane weapons for killing is a useless and even ludicrous one). On October 25, 2001, Chief of Staff, General Richard Myers announced that "yes, we have used cluster bomb units...There have not been a great deal of them used, but they have been used." If you're a military person instead of a civilian on the ground, "not a great deal" sounds like it might mean only one or two. But that's far from the case. Between October 2001 and March 2002, the United States dropped 1,228 cluster bombs containing 248,056 bomblets over Afghanistan.[158] In Herat, according to Human Rights Watch, between October 2001 and June 2002 latent bomblets killed 44 percent of their victims, while landmines killed 21 percent.[159] (Again, I think comparative numbers on death and dying are degrading, and I offer them only to make a point about lethality. A parent of a dead child does not care about categories.)

Afghanistan is a land-locked, rugged and mountainous country of 25 million, seemingly built for the military's favorite weapon, the Bunker Buster. There are 4 million people living in the capital of Kabul. Almost every person in the country now conducts his or her life without electricity, forced to cook with wood, which they cut from surrounding hillsides and transport into the city. Soot covers the insides of houses. One reporter likened the smoke-filled air to the worst, heavy, barely breathable, smog-filled days in Mexico City.[160] Abdul Wajid Adil, of the Society for Afghanistan's Viable Environment (SAVE), lamented in the spring of 2002, that "losses of natural resources are beyond estimation. Damage to the environment is second only to human loss." He predicted back in 2002 that, if the country sustained many more years of war, the bombing and related fires could wipe out the entirety of the country's forests.

Doctor Joshua Ginsberg, Asia Director of the Wildlife Conservation Society (WCS), stretches a bit to find a bright spot in all those landmines and cluster bombs. He hopes that the booby traps will keep people out of key wilderness areas and so, in a bizarre way, protect some of the country's few remaining endangered species. But he has serious doubts. For instance, he feels quite certain that the Caspian Tigers have totally disappeared, along with the Siberian Crane, but has a hunch that a few bears still survive, along with some Marco Polo Sheep, various rare birds, and endangered Snow Leopards, of which he believes fewer than 100 still prowl the mountains of Afghanistan. The pelts show up for sale periodically at military bases and fetch high prices—up to 1500 dollars.

In the midst of fighting between rival tribes, the United States, on October 7, 2001, started its bombing raids—but we should keep in mind that we began manipulating that country, through supporting the Mujahideen, at the beginning of the 80s. Now, instead of the Soviet Union, it is the United States that has been in Afghanistan for a protracted time—more than twenty years—using surrogates for a time and then our own troops. And whether Afghanistan remains in the news or not, we are, of course, still very much slowly but deliberately dismantling the infrastructure of that country. In fact, we have, over recent years, actually increased our presence, and not merely through the addition of troops, but, as we shall see, more dramatically in greatly stepped-up air attacks.

In July 2004, Lt. General Norton A. Schwartz, the Joint Staff's Director of Operations, testified before the House Armed Services Committee about the number of United States troops in Afghanistan. Several members of the House Committee expressed complete and utter surprise over the General's revelations. If anything, they had assumed a considerably smaller presence. In fact, they had no clue.

The exchange between John Spratt, Democratic Representative from South Carolina, and General Schwartz, points out just how closely the military guards its numbers, and the extent to which some Senators or House members operate in the dark. Remember, these are

not ordinary citizens, but members of Congress: they make the laws, they authorize the invasions, and they allocate enormous amounts of money. They are privy to documents about which we have no clue. They send young American men and women off to war, to stand, as politicians like to say "in harm's way." "We have a huge ongoing mission in Afghanistan," Spratt announced with all the confidence of an insider, "yet we've only got 12,000 troops there. Are we slighting and under-sizing, under-resourcing the mission in Afghanistan because of the demands on the mission in Iraq?" Without missing a beat, the General responded: "In point of fact, right at the moment we have about 17,900 US troops in Afghanistan. And that number is adequate to the mission." To believe the General, Spratt missed the mark by 50 percent.

While the major newspapers did not cover the story, the military paper, *Stars and Stripes*, did report on this little interchange. The author of the article, Lisa Burgess, dismissed the congressional surprise over the number of troops by saying that "keeping tabs on the number of US forces deployed overseas—information that military analysts and commanders call the 'order of battle'—is challenging... The Pentagon does not routinely disclose orders of battle, citing 'operational security issues.'"[161] I find her word choice, *challenging*, interesting. To find out the numbers is more than challenging. It is a frustrating, frightening, and near impossible task. Indeed, the usually reliable and accurate website *Global Security*, set the troop level in Afghanistan, in May 2004, at "nearly 10,000 soldiers and roughly 4,200 Marines"—missing the mark by several thousand—or more. For, as we have seen with the troop levels in Iraq, the General has made public the numbers that the military wants us to know. His word choice, "*about* 17,900" interests me, as well. If Iraq is any guide, however, the *actual* rather than the *about* number probably runs higher than General Schwartz admits.

But even the General can be wrong. While he said that he expected the number of troops to remain steady, commanders in the field repeatedly requested an additional 7,500 troops to maintain what is

euphemistically called "the mission" in Afghanistan, a number that Secretary of Defense William Gates says the NATO forces seem unable to supply. Gates consistently turned those field commanders down. Then, with no fanfare, on January 14, 2008, the Associated Press reported that Gates had decided to send an additional 3,200 Marines—a ground and air contingent, along with another battalion—to Southern Afghanistan for a one-time deployment of seven months. Gates expected them to counter what the Pentagon predicted would be a ferocious springtime military offensive from the Taliban. The Associated Press indicated that, as of January 2008, the United States had 27,500 US troops in Afghanistan, the highest numbers since the invasion began in 2001. With Gates' additions, the total would reach a little over 30,000. How did we get all the way to 30,000 or even 27,500, when General Schwartz seemed so adamant, so confident, about the lower number of 17,900? And how did the Associated Press conclude that the troop level stands slightly higher than 30,000?[162] It's all a mystery in the hermetically sealed world of the military—all unfathomable.

At any rate, here's where the numbers stand a year later, January 2009: 32,000 US troops, including 14,000 who serve with NATO forces and 18,000 who conduct training and counterinsurgency operations.[163] In addition, troops under the auspices of NATO number a whopping 70,000. Admiral Mike Mullen, Chairman of the Joint Chiefs under Bush, said in December 2008 that American forces could increase by the summer of 2009 to 60,000. He also said that the US currently has 31,000 soldiers in Afghanistan alongside the 60,000 foreign troops, offering yet another set of numbers from which to choose.[164] The truth here is that the US and NATO control an awful lot of troops in country in Afghanistan, as many as 100,000 and soon, perhaps, 130,000.

Ah, those elusive numbers! As a citizen, I expect to be in the dark about the truth on this issue of military numbers, but one can only wonder how members of Congress could be so off the mark about such a basic fact as troop strength. We entrust the safety of our sons

and daughters, our wives and husbands, to those Congressmen and Congresswomen. As they argue, discuss, and ultimately vote, they many times decide the fate of this nation, as well as the fate of other nations. We expect them to make reasoned decisions based on accurate data. We assume that they have access to the classified reports and documents that they need to make those reasoned decisions. Maybe that is not always the case—at least when it comes to matters military. Which leads one to wonder what else about the past seven years in Afghanistan do our senators and representatives also know nothing, or very little, about? What do we, as citizens, know nothing about? It must be an enormous amount.

What about a basic question like, how is the war going? Besides record opium production, United States military deaths and suicide bombings also hit record highs in 2007, and grew even higher in 2008. More than 6,500 civilians died during 2007, along with 117 US troops—in both cases, the highest levels ever reached in Afghanistan. Taliban suicide bombers pulled off a record number of attacks in 2007—140 in all, most of them more sophisticated than in the recent past, and more than in the past five years combined. Those bombs killed more than 300 civilians.[165] Almost 4,500 militants also died. Nearly eight years after the invasion, violence dominates much of the southern part of the country, where the government has little presence, and where militant attacks in Pakistan at the end of 2007 underscore a long-term regional battle with al Qaeda and the Taliban.[166] The assassination of Benazir Bhutto at the end of 2007 served to plunge the country deeper into chaos, and to bring al Qaeda back into prominence. The website *Unknown News* reports that 832,962 people have been killed in Afghanistan since we launched our attack, and that 1,590,895 people have been wounded in both Iraq and Afghanistan.

In the past couple of years the war has fallen apart for the United States; Taliban attacks have increased dramatically and US casualties and deaths have also increased. In June 2008, for the first time more soldiers died in Afghanistan—twenty-eight—than in Iraq. For the

first two months of 2009, deaths of GIs increased more than threefold over the same period in 2008 (twenty-nine as opposed to eight). The total number of GIs killed in Afghanistan since the beginning of the invasion totals 630.[167]

The International Council on Security and Development reports that, as of the end of 2008, the Taliban had its men in 72 percent of the territory of Afghanistan, up from 54 percent in 2007, and is expanding its control beyond the rural south. Like the insurgents in Iraq earlier, the Taliban seem undaunted by the combined might of the United States military and NATO forces. Indeed, they seem likely to morph like those insects that came to thrive on DDT in the 50s and grew stronger, absorbing the military's blows and recharging themselves. On December 8, 2008, the Taliban mounted the largest attack yet on NATO supplies going to Afghanistan, destroying ninety-six trucks and seventy Humvees, at a depot in Northwest Pakistan.

We know something about the dead. What about the disappeared? The *New York Times*, for January 7, 2008, carried the following, intriguing headline: "U.S. Prison Grows Beyond Capacity in Afghanistan." The American "detention center," established at the Bagram military base as a temporary holding tank in 2001, according to the *Times*, now "teems with some 630 prisoners—more than twice the 275 held at Guantanamo." The official name for the camp is the Bagram Theater Internment Facility. In 2004, that "facility" held barely 100 prisoners, and in early 2007, only 500. (Notice that only the *New York Times* uses the word "prison"; the military uses "detention center" and "internment facility.") Mistreatment—both physical and emotional—of some of the prisoners, long before we found out about the horrors at Guantanamo—has elicited strong complaints to the Pentagon from the International Committee of the Red Cross. The *Times* goes on to say that "military personnel who know both Bagram and Guantanamo describe the Afghan site...as far more Spartan. Bagram prisoners have fewer privileges, less ability to contest their detention and no access to lawyers. Some detainees have been held without charge for more than five years, officials said."

As the Taliban have stepped up their attacks, so has the United States Air Force stepped up its bombing. CENTAF provides numbers for Close Air Support sorties, for both Iraq and Afghanistan, and counts as a Close Air Support sortie any time a plane takes off loaded with ground attack weapons, either to wait for a target or to deliver munitions against a specific target. In 2004, in Iraq, American and allied forces dropped CAS munitions that totaled 285; in 2005, 404; and in 2006, 229. These figures do not account for helicopter missions—including attack helicopters.[168] (I am aware that drones—unmanned aircraft—may be slowly replacing conventional aircraft, in a movement called Netcentric Warfare Systems—robots, drones, and communication satellites.) In Afghanistan, on the other hand, the numbers move in the opposite direction: in 2004, CAS munitions dropped totaled 86; in 2005, 176; and in 2006, CAS munitions totaled an astonishing 1,770. The Center for Strategic and International Studies found a 65 percent increase in close air support/precision bombing raids in Afghanistan for 2006 over 2007, from 1,770 to 2,976. In 2008, there was a further increase of another 31 percent. The war grows uglier day by day. More than 6,000 Afghanis were killed in 2007 alone.

In other words, over half of the total munitions dropped by the United States in the last three years fell on the Afghanistan countryside in 2006. The other weapon drops appear to have been limited. All the drops comprised precision weapons, either GPS- or laser-guided, dumped out of a combination of various Air Force and naval-based jets. These munition counts do not include engagements with cannons, or unguided air-to-surface rockets. CENTAF counts here just the bombs and guided missiles dropped or launched from military aircraft.

But we must be careful with the phrase "precision bombing," and here's a horrifying reason why: On election day, 2008, while millions of Americans waited in long lines for the chance to vote George W Bush out of office and make a fresh start with Barack Obama, th US Air Force killed forty people, and wounded twenty-eight other

at a wedding party in the southern province of Kandahar. I mentioned targeted bombing in a previous chapter—fuel depots, nuclear facilities, power plants, and so on—but I did not mention weddings. It seems preposterous to do so, but this was the "6th wedding party eradicated by American air power in Afghanistan and Iraq since December 2001."[169]

Why would the American military wreak such destruction in what goes by the name of precision bombing runs? In just the last six months of 2008 in Afghanistan, American air attacks have been responsible for the deaths of two brides waiting to recite their marriage vows. It seems more than outlandish that the military bombed six weddings. Such a number takes it out of the category of simple error or coincidence. One wonders if it's a possibility of getting local leaders, drunk and with their guards down, all gathered at an event—more death for the dollar. And so what if some innocents get it in the end?

As I end this essay with the earlier war in Afghanistan, I want to end this section by returning to the beginning of the war, to that evening of October 7, 2001, and to an inventory of munitions that the United States military dropped over Afghanistan or fired into various parts of the country. Besides, that invasion began almost eight years ago, and is a dim memory for most of us. We have some reasonably accurate data for a change, since the military's think tank, the Rand Corporation, prepared a report in 2005 that documents the aerial war that first evening.

Forty or more airplanes led the attack, including two Air Force B-2 Stealth Bombers, each carrying sixteen 2000-pound satellite-guided GBU-31 Joint Direct Attack Munitions (JDAMs, an internal guidance system for the GBU series of munitions). Remember, the GBU-31 Bunker Buster contains one and a half metric tons of depleted uranium. According to Marc Herold, Professor of Economics at the University of New Hampshire, from the beginning of the war in Afghanistan to December 2002, the US dropped between 550 and 600 tons of depleted uranium.[170]

The first night's attack, Rand goes on, received additional support from sweeps by more F-14 and F/A-18 fighter jets. Aegis destroyers also fired a total of fifty Tomahawk land-attack missiles against high-priority targets. The Air Force, with its B-52 bombers, however, delivered the heaviest punishment from the sky. The Rand report says the Air Force "rained down both JDAMs and hundreds of 500-pound Mk 82 unguided bombs." Each Mk 82 contains almost 200 pounds of the explosive tritonal. Multiply that 200 pounds of tritonal hundreds of times—and you get perhaps as much as 60,000 pounds of tritonal, some 30 tons of explosive in a single night. That is an extraordinary number. It's difficult to imagine very much living through such an onslaught.

We can only guess at what the phrase "rain down" might mean in terms of numbers. Rest assured, the people and the land shook and trembled through hundreds of ear-piercing explosions, followed by fire, fright, maiming, and of course death. But if the Taliban did not get the message that first night, they soon would, as over the next five days B-52s and B-1B bombers dropped some 500 JDAMs, 1,000 unguided bombs, and 50 cluster bombs. In addition, 15 F-14 and F/A 18 fighter jets dropped 240 JDAMs, 1,000-pound and 2,000-pound Laser Guided Bombs (though the report neglects to say precisely how many), typically using the BLU-109, Hard Target Penetrator warhead. Recall, the BLU-109 warhead weighs 2,000 pounds, 550 pounds of which is explosive, a good portion of which is depleted uranium.[171]

The website *Global Security* points out some interesting details about all those sorties the first days of the war, which compound the problem of pollution for Afghanistan and elsewhere. For instance, Navy jets flew their missions from carriers in the Arabian Sea, some 500 miles from their targets. Air Force bombers flew six hour round-trip missions from Diego Garcia in the Indian Ocean; and fighter-bombers flew from bases in the Persian Gulf, missions that took eight to nine hours to accomplish. Bombers who conducted missions from Diego Garcia in round-trip sorties, mostly over the Indian Ocean,

flew anywhere between 12 and 15 hours, and covered roughly 5,500 miles. Remember, the B-52, with 8 jet engines, burns through 3,334 gallons of jet fuel an hour. Those 12 to 15 hours of flying means that each B-52 burned over 50,000 gallons of fuel![172] CO_2 filled the atmosphere.

If the Rand report is correct in stating that ten B-52s flew missions each night, then just the B-52s each evening consumed 500,000 gallons of fuel. Those planes, you will recall, must be refueled in the air, by huge KC-135 Stratotankers, that themselves gobble up enormous amounts of fuel. The Stratotanker, with its boom assembly, can off load fuel at the rate of 6,500 pounds per minute, or 1,000 gallons per minute. That's roughly enough fuel to keep the average car running for two years.[173] The calculus for just that one kind of airplane produces a nightmare of greenhouse gases.

When did the bombing start to taper off? Well, the Rand report states that, as of October 23—sixteen days into the air war—Air Force B-2, B-1, and B-52 bombers, from the 28th Air Expeditionary Wing, Diego Garcia, had expended more than 80 percent of the tonnage dropped on combat missions over Afghanistan during Operation Enduring Freedom. In doing so, the Air Force had flown more than 600 sorties.

The report continues. On November 20, 2001 senior officials announced that more than 10,000 bombs or missiles had been dropped or fired during the course of the war. By the end of the month, the eight B-1s and ten B-52s operating out of Diego Garcia had reportedly dropped most of the 4,700 tons of munitions delivered by the Air Force. That number represented 72 percent of the war's total by that time. To recast the number of munitions, 4,700 tons equals a staggering 9.4 million pounds of explosives. But, as horrible as that number may seem, the devastation only gets worse. By the end of November 2001, Rand tells us that the Air Force had dropped a total of 10,000 tons of munitions, or a staggering, overwhelming 20 million pounds. In addition, the Air Force dropped 600 cluster bombs: 450 BLU-103s and 150 BLU-87s.

Air operations did not begin to slow down until December 23, 2001. By that time, the military had flown 6,500 strike missions over Afghanistan, and had dropped about 17,500 munitions. The B-1 bombers delivered more bombs than any other aircraft. But Rand is quick to point out that, even as the pace slowed, by March 2002 the Americans had dropped another 2,500 or so bombs, making a grand total of around 20,000 bombs. By mid-September, 2002, the pace seems to have definitely slowed, as the number of bombs dropped had risen only slightly, to 24,000.

I say "risen only slightly" rather sarcastically, as if these were nothing but numbers, but of course they are not. These are bombs and they are instruments of death and torture. They pollute everything in their path, including people's nerves and imaginations and perceptions. These 24,000 bombs dropping from the sky over an entire year—2,000 a month, on average, 500 per week, 70 per day, 3 every hour—have the capacity, besides being able to deliver outright death, of driving a person out of his or her mind.

Notice how easily I use the numbers 24,000; 2,000; 500; 70? As if they were somehow unconnected with the worst sort of deaths imaginable. We Americans do not know fear in such proportions. I have only numbers to register, to translate, all that horror. My language—and the vivid adjectives of death and destruction—lose their power when I write about war, from the safety of this country. Our comfortable experience, our lives always on the periphery of war, somehow belittle the fetid facts of war. How can we possibly imagine ourselves as victims of a saturation bombing raid? I am reduced to writing about numbers. I regret this.

To return: terror works through anticipation of knowing something dreadful might happen, but not knowing precisely when it might happen, or of course where it will happen. In what place—what building, what market, what village—will the next bomb land? When will the next landmine go off? Where is it located? Will one of my loved ones get this one? How have I managed to live? Will I get the next one? Imagine Iraqi mothers or fathers fearing that their

children might be playing or walking in some forbidden zone, that is, in some potential zone of death.

Depleted uranium acts as such an instrument of terror. People wonder why they are beginning to feel sick. The source is invisible, the rays lethal. The same is true of landmines. Afghanis feel frightened to walk off the beaten path. Tomorrow or the day after tomorrow, for most of us, can hold great excitement. In Afghanistan, the future only raises more questions, shuts off more possibilities, brings more terror. No one makes plans. People just try to survive—this day, the next, the one after that.

Human Rights Watch reports that the United Front (formerly the Northern Alliance), our allies in the Afghan War, continue the Soviet practice of laying landmines inside Afghanistan, while Russian forces lay them along the borders of Uzbekistan and Kyrgyzstan. Human Rights Watch also asserts that the United States supplied landmines to the Mujahideen fighters during the 80s, now known as the Northern Alliance. The report continues by noting that "landmines have been planted indiscriminately over most of the country. Grazing areas, agricultural land, irrigations systems, residential areas, and roads and footpaths, in both urban and rural areas, are contaminated...Landmines and other unexploded ordnance contaminate at least 724 million square meters of land in Afghanistan. Only two of Afghanistan's twenty-nine provinces are believed to be free of landmines."

The United States is not among the 142 countries that have signed, ratified, or acceded to the 1997 Mine Ban Treaty, which prohibits possession or use of antipersonnel mines. According to the *New York Times*, on the third night of the air attack, the United States reportedly dropped a type of weapon known as "area munitions," which I have not yet mentioned in this essay. The military designation for the so-called area weapon is the CBU-89B Gator, a mixed-mine system containing both anti-personnel and anti-vehicle mines. Recall that the CB designation refers to a munition classified as a cluster bomb, which has a reputation as one of the nastiest kinds of bombs

that the United States employs, and is universally reviled by human rights groups. The Gator belongs to that category, with the nastiness ramped up beyond all limits.[174]

The CBU-89B is a 1,000-pound cluster munition, which contains a lethal combination of twenty-two antipersonnel mines and seventy-two antitank mines. Dropped from a plane, the mines arm themselves upon impact with the ground. Trip wires activate the antipersonnel mines. The antitank mines have a much more astonishingly complicated mechanism, activated by a magnetic influence sensor, which can detect and distinguish between a vehicle that has armor and one that does not. According to a military fact sheet on this particular weapon, the mine will detonate, even more astonishingly, when the sensor determines the place where the vehicle is most vulnerable. This is truly an example of the advanced technology of death.

While the military has designed the fuses to de-activate after four hours, field commanders report a very high failure rate—coincidentally, just like all the other cluster bombs—making this a munition that keeps on giving. These mines also have the capability of turning even nastier than the conventional cluster bomb, because of something called the variable time feature, which allows the mine—either antiperson or antivehicle—to explode unexpectedly for a period of up to four days. The military calls these moments of deadly surprise, in another of those euphemisms of the powerful, the "harassment feature."[175] Imagine, then, along with the hidden landmines, the unexpected explosions from probably thousands of these Gator bombs. The United States military has approximately 300,000 of them in its inventory. To own them is to have the itch to employ them. We can only guess where next.

The Department of the Army *Field Manual* refers to another variant on the true landmine, allowing the military to further skirt the prohibitions of the international ban on landmines. The Field Manual points to a particularly insidious little bomb known as the M86, Pursuit Deterrent Munition (PDM), and advises its use mainly

by specially trained personnel, "as a deterrent by special-operations forces and in operations where units may be pursued by an enemy or an enemy force."[176] Special Operations Forces include specially trained troops from the Army, Navy and Air Force, and includes the Green Berets, Rangers, and SEALs.

The PDM is a hand-placed, wedge-shaped mine which, when armed, deploys tripwires that are six meters in length. When tripped, the mine suddenly bounds up to a height of two to three meters (about six to nine feet)—just about or above the height of a person—hovers for a split second, and then explodes, spraying an area approximately ten meters at high velocity, with 600 1.5 grain fragments. In plain terms, it explodes with a fusillade of shrapnel. The military has designed the PDM to self-destruct four hours after arming, but once again this weapon, like many others, experiences a surprisingly high failure rate. As if this description were not awful enough, and although the *Army Field Manual* omits mention of it, *Global Security* maintains that the munition contains "a small amount of depleted uranium," without suggesting what a small amount might be. The Pentagon has more than 16,000 of those PDMs in its inventory.[177]

Before too long, the war in Afghanistan, in this new phase, will enter its ninth year. And it will have a new and fresh President championing the cause, pushing it toward rhetorical victory. That will, of course, require that Americans become freshly frightened, as well, and pay a renewed and strict attention to the Taliban and al Qaeda. The air war will, at times, make it to the front page, but probably only when a bombing raid goes awry and kills thirty or forty civilians, including a dozen babies and a few scattered children. Some spokesman from the Air Force will promise an inquiry; Obama will grow indignant. Senators will demand action. And then, slowly, the economy will rebound, erasing the war from the newspapers altogether. We can all write the history out of our memories, without having to rely on our imaginations. There will be arguments on the floor of the Senate about funding, some lone voice will advocate shutting the entire enterprise down, but then the chorus will start: You cannot let

our boys down. The funding passes. One or two large demonstrations will fill the streets of Washington, DC or Los Angeles, and the President will once again say, "That's democracy in action." The war will creakily roll on. No one will throw a shoe. But worse yet, very few will speak out for the voiceless, defenseless planet.

CONCLUSION

According to the Intergovernmental Panel on Climate Change, which shared the Nobel Peace Prize with Al Gore in 2007, the world faces a minimum of ninety more years of warming no matter what measures we take to stop it at the present moment. The Panel claims that the reasons are not only atmospheric (greenhouse gases, they claim, remain aloft for nearly 100 years), but perhaps more importantly, political. Our leaders cannot seem to understand the crisis we face and so refuse to pass serious legislation. America, the grossest offender in the world, must lead the way. Jay Gulledge of the Pew Center on Global Climate Change says that, at present, the atmosphere contains 385 parts per million of carbon dioxide. By mid-century it will reach 450 parts per million, which will bring us to a crucial point, a tipping point, if you will.

Which is to say that a serious environmental movement needs to begin here, in the United States, not just because we contribute more carbon per capita than any other country—20 tons for every man, woman, and child. Such a statement is, for many people, an

abstract notion. To make it more concrete, I recast it this way: We need to lead the environmental movement for radical change because we are responsible, with our way of life and our military, for murdering the planet faster and more effectively than any other country in the world. It turns out that the effects of 385 parts per million are far worse than predicted: Arctic sea ice is melting faster than scientists had predicted, and global sea levels are rising faster than they ever expected. The IPCC predicts that melting glaciers will result in "glacier lake outbursts of floods."[178] Tens of millions of Bangladeshis and other impoverished people living in coastal regions will be under water.

In the end, our efforts must expand exponentially, into a communitarian movement across the globe the likes of which no one has ever witnessed, one that refuses to make compromises about a basic respect for life—human and non-human, rich or poor, white or people of color, upper or working class—especially in the most vulnerable and environmentally fragile parts of the world. Thomas Friedman, writing in the *New York Times Magazine*, hopes that "the next president will rally us with a green patriotism. Hence my motto: 'Green is the new red, white and blue."[179] I hope that we can step out of the predictability of patriotism, out of the confines of country and nation, to entertain a much larger and grander vision.

An Inconvenient Truth makes the point that if we hope to have any chance at all in limiting severe climate change, we will all need each other—small countries and large, poor countries and wealthy ones. In the face of this planetary emergency, terms like "First World," "Second World," or "Third World" no longer make sense. Al Gore has inspired an important beginning. His Nobel Peace Prize is a testament to that fact. It is up to the rest of us now to provide that beginning with energy and ideas and to keep it expanding until it turns into a powerful movement. Barack Obama seems to believe in the truth of global warming. As Commander in Chief, he will need to be educated about the mess his military is making of the environment.

We can truly call a coalition of no-war and pro-environmental activists "grass roots," for the name refers both to the actions of the people, and to the earth, each at a very basic level. As Bush said when he announced his Iraqi Surge, we have one more chance to get it right. We may indeed have one more chance, but it's not about success or victory or stability in Iraq, or the eradication of the Taliban or al Qaeda in Afghanistan. It's a chance for all of us to truly live in some kind of reasonable way, but that goal demands something unthinkably difficult—an end to the Earth's most potent nemesis: War. It is we, Americans, who launch the largest and fiercest wars around the world. And so it seems only logical that the citizens of this country do everything possible to help put an end to those wars in Iraq and Afghanistan, and to prevent a possible future one in Iran.

Secretary of Defense Robert Gates asked Congress, in the fall of 2007, for an additional 50 billion dollars for fiscal 2007–2008, to fund the war in Iraq.[180] That's on top of the 23 billion dollars congress had already approved for the war, making a total of close to 173 billion dollars for the year, or roughly 3 billion dollars a week to fund the ongoing devastation. In 2007, Congress funded the war in Iraq at 173 billion dollars; and, in 2008, the most costly year up to that point, at 195 billion dollars. Through 2008, the Iraq war alone had racked up a cumulative cost of over 600 billion dollars—more than the Korean war and nearly as much as the Vietnam war.

The Department of Defense budget request for fiscal 2009, without allocations for the wars in Iraq and Afghanistan totals 515.4 billion dollars. When we factor in monies for emergency discretionary spending and supplemental spending, the total comes to 651.2 billion dollars. At the very same time he requested that money, Gates announced that he was inclined to spend an extra 3 billion dollars to accelerate the expansion of the troops on active duty. We might recall that, in January 2008, when Bush announced his intention to deploy an additional five combat brigades for his so-called surge, he also approved a plan—not very well covered by the press—to increase the

size of the active-duty Army by 74,000 soldiers over five years—from 512,000 to 586,000. (That will cost yet another 3 billion dollars.)

Gates also announced plans to expand the Marine Corps by an undisclosed number of recruits. Neither Secretary Gates nor President Bush talked about how much more greenhouse gas such an expansion would add to the atmosphere, an omission that should come as no surprise. Such a question may not cross our minds: We are not accustomed to think about the military and carbon output. But this is the Earth in the twenty-first century, on the brink of catastrophe; and we need to be asking different questions and confronting every department of the government, every corporation and business and institution, and most assuredly, we must be confronting ourselves. We need to think differently about the way we conduct our lives, and the way we impose ourselves on the lives of others—most of whom live half way around the world, in places we cannot locate on a map, or the names of whose countries and leaders we cannot or will not pronounce correctly.

This is not an easy task, for no one seems able to stop this juggernaut known as the military. I mean something beyond just shutting down the wars in Iraq and Afghanistan. I mean trying to erase the way the military has worked its way into the imagination of every American—young and old—over the centuries, so that even most liberals find it very difficult to conceive of solving global problems through anything other than military might. Not education, not the church, not marriage, certainly, only the military in the twenty-first century, has assumed the rank as the most sacrosanct institution in America. From its lofty position, the United States need brook no criticism, answer no objections, and make no real corrections.

The metaphors of combat and war have infiltrated almost every aspect of daily life—sports, religion, business, medicine, music, and even personal relationships. Camouflage clothing, Army boots, military haircuts, and huge Hummer vehicles, now serve as key fashion statements. For centuries, children have been singing joyously about "the rockets' red glare" and "the bombs bursting in air." We "snipe" at

OED calls "avowed active hostility"—our notion of warfare—does not appear in English until late in the fourteenth century.

Like Mary Oliver's Esquimo, we were once a people who lived without the concept of war. Unfortunately, the world has perfected that most alien concept over more than 600 years, from the fourteenth century on. The idea has been, for the most part, an absolute failure. Perhaps it might be possible to return to that earlier time.

But if such a change is indeed possible, it will not come from this president or a future president; it will not come in the form of an institutional response. We should not count on any member of Congress to confront the military. A senator or a member of the House might think of it, but would never take action, would never speak out against the solidity of the military at this moment, or the continually expanding military and its needs for more and better equipment, out into the far distant future. The average citizen, also, has a hard time criticizing military strategy. (Who could be opposed to cops walking a beat? Don't you want to feel safe?) Even if no one knows exactly what it means, "Support Our Troops" has assumed the status of a mantra that has a built-in immunity from any questions or criticism. We are expected to accept such slogans without thinking critically about them—a perfect corollary to the way we are expected to accept, without questioning, the wars in Iraq and Afghanistan.

And, always, in hushed tones, one hears that ultimate threat: withholding funds from the military. But, who would ever dare to take such a bold leap? In this country, the military seems to have its way, with very little consequence. Following hours and even days of sometimes heated debate, Congress passes the next and then the next bloated military budget. Children's health care, corporate emission standards, OSHA standards, along with money for education, for the homeless, for the poor, or those wrongly imprisoned—these things all routinely get turned down. But not the Pentagon. No one turns down the Pentagon.

Meanwhile, the worst atrocities committed by United States soldiers against Iraqi civilians—so called "enemy combatants"—such as

the horrors that happened at Guantanamo Bay, or the outright murders at Haditha, end with reprimands, or the dismissal of all charges. Or, in the case of the many slaughters of civilians by one private defense contractor or another, very little, if anything, happens at all. On June 27, 2004, L. Paul Bremer, head of the Coalition Provisional Authority, signed Order Number 17, exempting private contractors in Iraq from prosecution, making it certain that Blackwater and other such corporations would answer to no one and to no agency. Private contractors conduct their business in Iraq and Afghanistan outside of any law—domestic or foreign. Part of the recent Status of Forces Agreement between the United States and Iraq—and one of the principle points of contention—was a provision for holding to account American contractors working in Iraq. Maybe that will hold, but most likely not. Meanwhile, the drumbeat goes on and on. And so the military and its intimate associates—dare I say its mercenaries—get a pass, a free ride.

The armed forces grow larger and larger, Pentagon leaders boasting of more equipment and greater technological advances. Like every other aspect of capitalism, each military branch must, of necessity, grow larger and fatter each year; expansion is the lifeblood of imperialism. Each year, the Pentagon builds more and more strategically-placed bases around the world. That's what the strongest nation in the world requires to maintain its position as number one. At least, that's what all the politicians and the leaders—both Republican and Democrat—tell us. Each beribboned general proclaims, to whoever will listen, that this is the best and boldest, most able and powerful military we have ever witnessed in the history of human civilization. Whatever that general says immediately turns into the gospel truth. Very few, if any, senators had the nerve to confront, let alone contradict, General Petraeus as he testified, in the summer of 2007, before congress on the success, against enormous odds and numerous naysayers, of the so-called surge.

The only way to end the war in Iraq, or Afghanistan, we should all now realize, is to cut off all funds. To end all war requires more

of the same strategy. The United States Status of Forces Agreement with Iraq establishes that American forces will withdraw from Iraqi cities by June 30, 2009, and that the US will be completely out of Iraq by December 12, 2011. But, if roadside attacks increase, who knows what President Obama will do? In the end, no one can pry this nation from the military's crushing hold, just as no official in the Bush White House was ever able to describe what success might look like. One would be hard-pressed to say that success even exists in war—any war. And, as I have said, no politician will risk his or her career making that foolish move of drawing in the purse strings as tightly as possible, and saying no, you cannot continue your policy of outright aggression in Iraq or Afghanistan or some other country of current interest. No politician—Democrat or Republican—wants to look soft on defense. But, that's the only way to stop the military, the only way even to slow it down—cut off its lifeline of money—and that simply cannot happen. For the military comes first in this country, before everything else—before education, healthcare, and certainly before the needs of the poor and the destitute.

Americans have come to confuse having a large and powerful military with feeling safe and secure. They want to move through their neighborhoods absolutely and totally without fear, and local politicians convince them that the solution is to place more police on the streets—in cars and on foot. Likewise, the government now has us convinced that a huge and mighty military is the only solution to the threat of terrorism: more troops, more firepower, more shock and more awe, more contract workers—it's always more and more. And yet, as we also know, the insurgency in Iraq does more than just go on and on. It has morphed and grown and expanded within the country. The insurgents themselves have changed their tactics, staying one or two steps ahead of the Americans.

Al Qaeda in Iraq has, likewise, splintered into several different groups, grown more clever and, at the same time, more vicious. It has exported its tactics and means and personnel to other countries. Meanwhile, in Afghanistan, the Taliban not only refuses to be

bombed into submission but, indeed, according to every news report, has grown stronger and stronger, and more crafty, within the country. According to our own Director of National Intelligence, Michael McConnell, the insurgency has regrouped and reformulated in Pakistan. As I have said, America will soon deploy more troops to confront the Taliban resurgence, as if might could best maneuverability, as if cannons could eliminate cunning.

Four days before he exited the White House, George W. Bush spoke to the nation. One of the things he bragged about was that the United States had not suffered a terrorist attack on its soil since September 11, 2001, which he attributed to his diligent efforts and far-reaching policies. What he didn't say, mainly because he doesn't understand it, I think, is that terrorism works in the same way as partial reinforcement—attack once and then keep your victims guessing. When will the next hit come and where will it come from?

But the tactics of terror are even more sophisticated and elusive than that: the attack of September 11 is still going on. Terrorists have been attacking us for eight long years. America is terrorized, plain and simple. We are practically broke, having spent our monies on military attacks and the creation of new agencies and the protection of airports and sea ports, and on and on. The military is hopelessly short on troops. (A bad economy might fix that, as people search for jobs, any jobs.) We are the victims of the most sophisticated terror attack, and we have been scaring ourselves for so long now we no longer recognize the a normal state of affairs. We have become the terrorists; we have internalized the fear. We spy on each other, turn each other in, distrust the dark-skinned other with the funny-sounding name.

Vietnam provided a potent historical lesson: the largest and mightiest military in the world could not defeat a population who, to use a bit of hyperbole, took on the world's number one superpower with little more than sharpened bamboo sticks, bicycles, and an elaborate system of tunnels. That war gave the world key phrases like "hearts and minds," "domino effect," and "quagmire." We can achieve no victory, military experts repeatedly tell us, without winning the

hearts and minds of the people. If that's true—and I am not certain what the phrase actually means—no one can accomplish that goal with tanks and guns. For every war will produce its own gruesome version of the atrocity known in Vietnam as My Lai. We already have witnessed several of them in Iraq. Such atrocities offer guaranteed ways of losing people's hearts and cracking their minds wide open.

The point here is not just the absolute autonomy that the military enjoys in this country, but the way it exploits its position, as well. The military establishment is arrogant. It conducts its affairs facing little criticism and even less restraint. The Pentagon answers solely to itself. It writes its own rules. The price we all pay for that uncontested arrogance and secrecy is now a heavy one: the ultimate destruction of the planet. The subject of the military never comes up in high-level, policy discussions of the environment. And it probably never will. As I have said, it takes more than bravery to confront the military. One risks being a traitor, a turncoat, something other than a pure patriot, when one takes on the military.

To rein in the military will take a wholesale change in thinking in this country. It will require thinking beyond force, beyond might and power. We will need to think not about driving people apart but bringing them together. Only with such a radical shift, however, can we begin to make significant changes toward confronting the crisis of global warming. Perhaps we find ourselves in Iraq for a series of reasons, but Doctor King surely hit on one of strategic importance—oil. We need that precious stuff to keep our habit going, to fuel consumption in this country. It appears that we Americans are willing to go to great lengths to attain the oil we need to maintain the lives we love.

This government places huge corporations in the same exempt category as the military. At a two-day summit on climate change at the White House on September 27th and 28th, 2007, Secretary of State Condoleezza Rice refused to impose goals or set deadlines for cutting greenhouse emissions. She could bring herself to do nothing more than make a plea that all the major polluting nations, including the United States, work toward setting caps on greenhouse emissions.

We simply cannot afford to dampen the economy, she said; setting limits and deadlines will cost too many jobs, cause too much slowdown in production. And then she uttered a feeble statement about solutions, demanding that all developing nations "cut the Gordian knot of fossil fuels, carbon emissions and economic activity. The current system is no longer sustainable, and we must transcend it entirely through a revolution in energy technology."[181]

Those revolutionary new technologies, she predicted, would lift the world out of this looming disaster. That's the promise. Politicians have always held out the promise of change of a better life—success through this technological innovation or that spectacular invention. Maybe that will happen. I doubt it, but maybe buried in her promises and platitudes one might find a glimmer of hope. She also did not mention that the Bush administration tried to censor and intimidate federally funded institutions that work on climate science, like the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration, and NASA. The administration doctored scientific reports and went so far as to try to put the muzzle on arguably the world's best-known and most-respected climate scientist, James Hansen.[182]

This essay offers something concrete, and it starts with the biggest single source of pollution in the country, the military. Of course, our Secretary of State said nothing about the military and pollution. For her, of course, playing the role of advocate for the most bellicose administration in modern times, the military had to remain far off limits. How many times must we hear, "We are at war. We will be at war for a very long time—perhaps for as far as we can see into the future. We will win this war; and we will win it with military might"? GWOT, the Global War on Terrorism, has grabbed hold of our collective imagination and simply will not let go. This vigilance—this way of being in the world, in which we lead with our firepower—will last for the rest of our lifetimes, the Bush administration warned us. Terrorism is with us to stay: it is the New World; the new "clash of civilizations." As Bush put it, our wars constitute the New Crusade.

We must struggle against such a vision, doing everything we can to prevent ourselves from falling into that kind of easy and clichéd way of thinking about the rest of the world—particularly since most of the rest of that world means people of color.

That martial attitude follows closely on the government's second most important objective: the protection of big business. At the White House summit, it was not an environmental advisor but the Secretary of the Treasury, the person responsible for the budget, who came to Bush's defense for refusing to ratify the Kyoto Protocol. The Protocol, an amendment to the United Nations Framework Convention on Climate Change, requires industrialized countries to reduce their greenhouse gas emissions to 5.2 percent below 1990 levels by 2012. One of Bush's first acts as President was to repudiate the Protocol and refuse to bring it to the Senate for ratification. Thus, the Kyoto emission caps, set to expire in 2012, have no binding power in this country.

If the US government makes any move to reduce emissions, it will certainly be tempered by the desire to protect big corporations, most assuredly the oil and the coal industries. As evidence, the Bush Administration, in April 2007, went so far as to argue in the Supreme Court that carbon dioxide did not constitute a pollutant. The Court rejected the Bush contention and "ordered it to review its environmental policies." Dozens of states have made their displeasure with the Bush administration known by passing their own caps on the greenhouse gases.[183]

But, Bush is not the only villain. Opposition to Kyoto crosses party lines. While Bill Clinton professed to agree with the Kyoto Accords, he waited until the very last day of the deadline, in 1998, to sign the treaty, which he did without fanfare, without the usual ceremonial backdrop of the Rose Garden. The President does not, of course, have the power to negotiate treaties alone. He must have the consent of the Senate. And over the course of his next three years in office, Clinton did not take the treaty to the senate for ratification,

for it had already expressed its disapproval to any restrictions on economic output.

Something else, something besides concessions to factory output and GDP prevents any administration from signing such accords. And that, of course, is the country's deep and abiding commitment to a powerful and military *free of any restrictions.* If we had an education program in this country that taught about the amount of military pollution and the way its numbers remain off the books, about how the military's principle enemy is the earth, then we might be more easily able to make the radical changes needed to slow down the on-going crisis of global warming. President Obama made greenhouse gases a hallmark of his campaign; he promised reductions without specifying how much or how to do it. We will see just what he will attempt to do, and just what he will manage to accomplish. But, if he is serious about the crisis, he must confront the fact that he is Commander in Chief of an intensely revved up military that is menacing the entire planet. In the end, it seems highly unlikely that the military will not win out over something as abstract as climate, that the heft and muscle of a tank will not trump that invisible stuff called CO_2.

At the meeting of the International Panel on Climate Change, in Bali, in December of 2007, members announced new Kyoto emissions targets. (Its agenda ran to twenty pages and did not include a single mention of the military.) They include the need for the so-called rich countries to cut emissions by up to 40 percent below 1990 levels by the year 2020; and the rest of the world to cut emissions by 50 percent by the year 2050. The Panel also pointed out that the United States and Europe are chiefly responsible for raising levels of carbon dioxide, the main greenhouse gas produced by the burning of fossil fuels, from 280 parts per million to 380 parts per million. Carbon dioxide levels had remained steady for some 650,000 years until the Industrial Revolution. They have risen steadily since.[184] A study by economists at the Electric Power Research Institute maintains that unless countries begin to curtail emissions drastically, the concentrations of carbon dioxide by 2040 could exceed 450 parts

per million, "a threshold that many scientists say could set in motion harmful changes for centuries to come."[185] I have mentioned these changes earlier in this essay.

In an article in the *Los Angeles Times*, August 5, 2007, titled "Road Kill," the author, Gregg Easterbrook, points out an often neglected fact: traffic deaths are the fastest-rising cause of death in the world. In this country, an astonishing 42,642 people died on the road last year, more than fourteen times the number killed by terrorists in the Twin Towers. The principal cause for the high number of traffic fatalities in this country, Easterbrook argues, is a yearly rise in horsepower in our cars, SUVs, and pickup trucks. For example, 20 years ago, the average new passenger vehicle boasted 119 horsepower and went from 0 to 60 miles per hour in 13 seconds. By 2007, the comparable figures were 220 horsepower and 0 to 60 in 9.5 seconds.

Higher horsepower means not just higher fuel consumption but also greater greenhouse gas emissions. Easterbrook points out that if manufacturers reduced horsepower by one-third, miles-per-gallon efficiency would also rise by one-third. Now here's the kicker. It is such an astonishing fact that I want to quote it directly from Easterbrook himself: "One decade of sales of new vehicles with one-third higher horsepower accounts for the amount of oil the United States imports from the Persian Gulf region. Reduce horsepower by a third and end U.S. Persian Gulf oil dependence."[186] It's that simple, he says. What Easterbrook does not point out is that, even with all that horsepower increase, the average speed on America's highways, because of congestion and speed limits, has not increased. In fact, it has gone down.

But no matter, for Easterbrook offers us more than a solution. He presents us with a strategy, a way of beginning to deal with this impending disaster called global warming. It is one that we do not often hear. In order to move forward, he says very flatly, we will need to take more than a couple of steps to the rear. Indeed, he compares the horsepower race to the arms race: in each case, an end can never be reached. Power and the desire for power will not allow any limits.

In the context of this essay, the military will just keep expanding and expanding, with no end in sight. We must move beyond war.

Why should we entertain the idea of a military with limits? After all, surely we want our military to be as strong as it can possibly be. That means a military that brooks no restrictions on money, on equipment, on man and woman power. But, as I have tried to point out, for America's most sacred institution, the military, that kind of expansive attitude no longer makes much sense. Kennedy, Johnson, Nixon, Clinton, and the two Bushes—all have shown us that war always turns counter-productive and comes back to bite us.

But now we have an additional reason: the Earth, as I say, simply cannot absorb any more abuse. The Science for Peace Institute at the University of Toronto found that an astonishing 10 to 30 percent of all global environmental degradation comes from worldwide military activities. While the Institute does not focus on pollution, it does conclude, however, that the armed forces of the world hold the distinction as the single biggest polluters on the planet.[187] The American military, however, is not the only culprit. Every military unit in every country acts with the same ruthless abandon once the government lets its troops loose on another, foreign and unprepared population.

In fact, if we are serious about saving the planet from total destruction, we must face an essential fact: the largest single source of pollution on the planet, and of the planet, must radically eliminate its damage *to* the planet. If the military were a corporation, and operating with no restraints whatever, we might at least be holding discussions about such arrogance. But the price of imperialism demands an unbridled military, one that we must allow to decimate whatever it wishes on its way to total control, even over the earth itself. We might question that corporation, undertake rational discussions about whether we want some restrictions, some legislation, or even exercise whatever power we have in a capitalist society and withhold our purchases. We might even file an anti-trust against the military. But most of us back off from such actions. We all, quite literally, find ourselves forced into buying into its ethos and philosophy. After all,

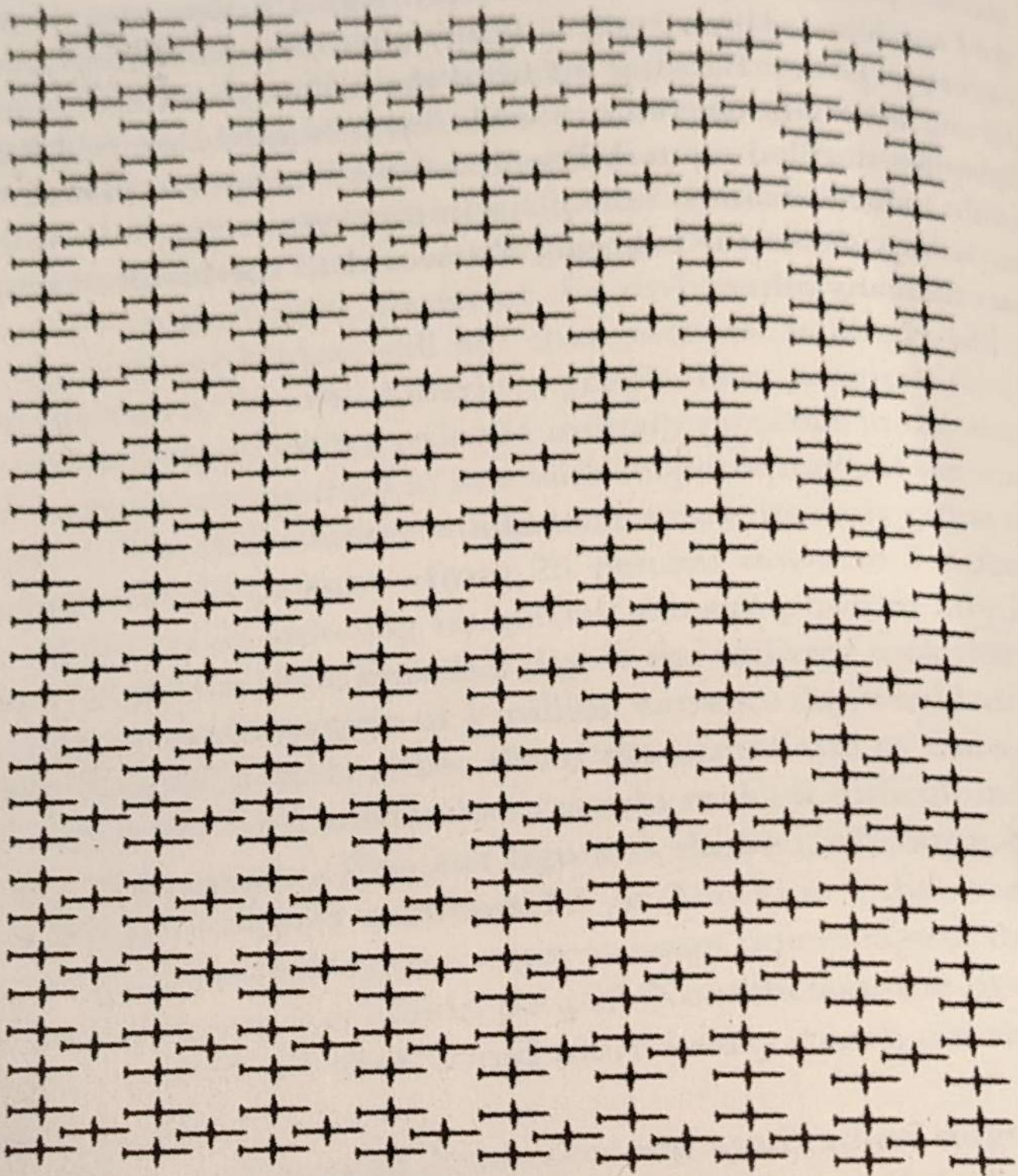
once we pay our taxes, we act as if we support the government without exception—we quite literally "buy into" the whole system.

For the sake of the planet, the military has to take many steps backwards or, more accurately, someone or some group will have to screw courage to the sticking point and confront the military. That is why I call Easterbrook's conclusion a significant and important strategy, for if we are indeed serious about reversing greenhouse gas emissions, Americans will need to heed that lesson themselves and throttle back their consumption, not just of fossil fuels, but also in all sorts of other areas. But we should agitate to have the military, as the country's single largest abuser of the environment, lead the way. Obviously, military leaders will not change course willingly, will not do it on their own. We, the American people, have to agitate for a reduced military, along with a reduced military presence in the world.

If America consumed oil in line with its percentage of the world's population, then this country would have to cut its daily ration of oil by a whopping 80 percent—from 25 percent down to 5 percent—which would mean reducing its current consumption of 20 million barrels a day to 4 million barrels a day. If the military took that same cut, its current consumption of 1 million barrels a day would turn into a measly 200,000 barrels a day, about the same level as Cuba or the Czech Republic. Such a drawdown would make it difficult indeed to take on many nations. This last figure is skewed, of course, because our active-duty military numbers 1.5 or 2 million—that number, as we know, varies according to source—a scant percentage of the global population of some 6.5 billion people. Nonetheless, the figure gives us a look at a military that would more nearly match our size in the world.

For obese people, some doctors recommend radical surgery, suturing closed part of the stomach, reducing its size drastically. Patients balk; they kick and scream. But if they do not do something like that, they know they will die. In the end, most feel relieved and much healthier. Moreover, most of them survive.

I like that analogy. It is to say that putting limits on our military will not be an easy task. Indeed, it may not even be possible. But, it will be worthwhile to try. The military, as I have said, is probably the last place any patriotic American wants to see cuts of any kind. And a reduced military will radically alter the way America conducts its foreign policy. Backing off from the military will necessitate conducting international politics with fewer bombs dropped and more diplomats shuffled around. People need to recognize that severe and serious reductions must take place in that one sector—the military—that is responsible for bringing the world to the brink of extinction faster than any other.



800 TOMAHAWK CRUISE MISSILES

ONE EVERY FOUR MINUTES DROPPED BY THE
US AIR FORCE INTO THE HEART OF BAGHDAD
MARCH 20-21, 2003

= 3,000 lbs.
800 lbs depleted uranium

AFTERWORD

On Saturday, January 10, 2009, the forty-first President of the United States, George H.W. Bush—out of office sixteen years—received one of the highest honors this country can bestow on a president. George H. W. Bush had a Nimitz class, nuclear-powered aircraft carrier named after him. The *USS George H.W. Bush*, built at a cost of 6.5 billion dollars, sat in dry dock that Saturday afternoon, awaiting its full compliment of 6,000 sailors and marines. More than three football fields long, the *USS Bush* takes its place alongside a fleet of other presidential carriers—Republicans and Democrats, founding fathers and bright lights, cruising side by side in search of the next country to invade, "save," or "police"—the *USS George Washington*, *Abraham Lincoln*, *Theodore Roosevelt*, *John F. Kennedy*, *Dwight D. Eisenhower*, *Harry S. Truman*, and *Ronald Reagan*. Bush obviously saw the ship as a military extension of the nation, as he told the crowd: "The crew will form an unbroken line of patriots protecting this special piece of American territory"—a maritime version of manifest destiny.

Having one's name written across the side of such a huge vessel is an honor that may indeed rank higher than having a presidential library in one's name. For a library, presidents must raise their own money and then fill the building with their own papers and a few hundred books with respectable and meaningful titles. But an aircraft carrier, well, the Pentagon buys that for you in the name of every democratic ideal that the country holds dear. Bush's sister, Doro Bush Koch, held a bottle of champagne aloft and sent it crashing cross the ship's bow, christening the carrier, as if it were an innocent newborn, in the name of peace and democracy.[188]

Most of the issues that I raise in this essay come together and are made obvious with that January 10 commission: an enormous budget dedicated to furthering all things military; an overweening pride in the country and in the military; a deep connection between technology and killing; an even deeper nexus between political power and war; the easy and false connection between armament and national security; the consecration of war heroes. Finally, and most importantly, the launching of that monstrous vessel makes clear an absolute and utter disregard for the health of the planet. Recall the fuel consumption of the *USS Independence*. And even though the *USS George H.W. Bush* is nuclear powered, as I pointed out earlier, such carriers still heavily pollute the sea, the sky, and eventually all life. A radiation leak of even the smallest proportions would be devastating for the seas and skies.

Imagine, if you will, a room filled with politicians and bureaucrats sitting around tables discussing the wisdom of developing a 6 billion dollar monster of war. Upon hearing of such a project, civilian critics like to raise the issue of tradeoffs: what would that 6 billion dollars buy, in terms of food and shelter and education for the poor in this country? But such discussions are really beside the point, because no one in authority ever entertains such a question, or wonders about such a tradeoff. The choices are made with bureaucrats arguing over the size and scope of the project, and how much money will come back to their home state. In the end, the military trumps every other

priority. The bulk of the federal budget always makes its way to the military. Discussions about spending cuts and alternate priorities turn out to be *pro forma* at best.

The Pentagon has always gotten its way, no matter what, while each day we citizens grow more fearful and distrustful of the world around us. More carriers will be commissioned and more troops deployed, and the number of insurgent groups around the world will continue to grow. When Hillary Clinton testified before the Senate, on January 13, 2009, about her confirmation as Secretary of State, she didn't take long to say that this country would resort to war where and when it was necessary. She went on to point out that the new threat, intelligence reveals, will come from terrorists waging a bio-war on our soil. Without actually making anything explicit, Clinton made the case that every citizen should begin feeling even higher and higher levels of fear and panic. Day One of the new confirmation hearings, and the old rhetoric was still on the march. Listen closely to those familiar beats of the drum: they sound out a warning that we can expect even larger military budgets in the coming years.

I have argued in this book that lowering thermostats and changing light bulbs will have little effect in turning aside the enormity of the global warming crisis. Just a few years ago, environmental scientists told us we had about ninety years before climate change reached the point of no return. At that moment, nothing we could do would reverse the course of warming trends. Those same scientists say we have no more than forty, though maybe even fewer years, to take the most decisive action possible. Conditions, they say, have grown seriously worse. In the recent past, climatologists told us we needed to cut greenhouse gases by 70 percent, and then they demanded 80 percent. Now, many argue that greenhouse gases need to be reduced by an astonishing 90 percent. The Greenland icecap has already begun to turn to slush, and because of that melt, climatologists earlier predicted that the oceans would rise by two feet this century. They now expect them to rise much higher. If the icecap completely disappears, and the data suggest that the melt is occurring much more rapidly

than any of the models had predicted, scientists expect the oceans, worldwide, to rise some twenty-two feet.

Similarly, cutting the budget for the Department of Defense, decommissioning some ships, or converting from lead bullets to zinc will hardly matter. It also makes little sense to subject the military to oversight restrictions like the Clean Air Act, the Superfund Laws, or the Resource Conservation and Recovery Act. What if the military did in fact agree? Would we then feel that the environment was really being protected? I think not. I have already talked about the absurdity of a green military, of the possibility of some Orwellian concept called pollution-free decimation. So what if the military switched to millions and millions of low-energy light bulbs? The United States military remains in the business of the wholesale destruction of life on this planet. We cannot take incremental steps toward the elimination of war, or hide behind the greening of death. We can settle for no less than the most politically impossible move: the end of war.

One more comment about commissioned ships: Consider the *USS Constitution*. I find in the naming of that carrier an even deeper and more potent connection than one honoring a president. How astounding: a behemoth of war named for what most people in the country view as its most sacred and founding document. At first glance, it seems blasphemous. In a strange way, the naming reveals the truth, of course, that the roots of war grow deeply in the very founding of the republic, and spread out and travel through the entirety of the nation's history. But it seems clear that war has run its course: the roots now threaten to choke us all.

In his magnificent preface to Frantz Fanon's *The Wretched of the Earth*, Jean-Paul Sartre urges his French brothers and sisters to read Fanon, an Algerian stranger, if they wanted to understand the intense pain of colonialism:

> Fanon reveals to his comrades—above all to some of them who are rather too Westernized—the solidarity of the people of the mother country and of their representatives in the colonies. Have the courage

to read this book, for in the first place it will make you ashamed, and shame, as Marx said, is a revolutionary sentiment.[189]

I do not claim for myself the stature of Frantz Fanon, but I do hope that the reader will feel a measure of shame after reading *The Green Zone*. What we Americans have done, not just over the past eight years—for that is obvious—but from the inception of this country by pushing the agenda of war, has been shameful. Damage to the environment, human and non-human, has become more obvious in the recent past because Iraq has for some time been on the front pages, as well as the fact that we have been subject to a most dreadful administration and that the earth now cries out mightily for mercy. And while the new weapons of war—amazingly powerful jet aircraft, horrifically destructive bombs, and depleted uranium—produce staggering amounts of pollution, we must realize that this country has been generating pollution on some level since men with rifles began their confrontation with Native Americans early in our history. We polluted as we expanded west, and then we polluted as we moved off our shores to other countries. We pollute as we purportedly advance democracy using the most powerful machinery of death in the world. We pollute as we consume. We pollute as we colonize. We pollute as we kill.

It doesn't make much difference to shut down the war in Iraq while still pursuing the war in Afghanistan and carrying the threat of war to other countries. We will not survive, plain and simple, without the total and complete elimination of war. The phrase reverberates anew: There is no reason on Earth, anymore, to entertain the possibility of war. Barack Obama cannot shut down all war. No president or politician can do that. Obama may get us out of Iraq—that war has dragged on and on, grown massively expensive, and has had its day. Anyway, he has public opinion behind him. Nonetheless, Obama cannot take a stand against all war. To do that, he would have to break the hold of the biggest corporations in this country. While he pledges

to expand the war in Afghanistan, his Secretary of State talks hawkish on Iran.

Only we can affect a radical change. But how can that happen? I think there is only one way to stop the machine from grinding on and on. Which takes us to the reality beneath the issue of oil that Doctor King talked about, and that is money. Like all federal agencies, of course, the Pentagon runs not just on money, but on barrels and barrels of money. The defense budget takes up at least 54 percent of the total federal budget—even more if we add in monies for related areas like NASA, Department of Energy nuclear bombs, veterans benefits, and interest on past military debts. Even in the worst of financial times, the Pentagon's budget expands. Even in the worst of financial times, political leaders do not hesitate to double the number of troops in Afghanistan. All this somehow in the name of making us safer.

According to Steve Martinot of San Francisco State College, the military "is now connected and conjoined to 50 percent of all economic activity in the US." He goes on to explain how intertwined the military is in the ordering of the economy: "This doesn't mean that 50 percent of all production is military production; it means that 50 percent of all economic activity is associated with the military, either in the production of military hardware, the running of bases, or in ancillary industries whose major customer is the military, and thus who owe their existence and functioning to that major customer."[190]

Martinot is saying something that, for many of Americans, may sound astonishing: big corporations are the military—simply out of uniform. There is big money to be made in war, we know that, even beyond the obvious examples of Halliburton; Blackwater USA; Parsons Engineering; and Kellogg, Brown & Root. Military might has spread out through the entire system; a huge number of people have a financial stake in its health and strength. The CEO of Raytheon does not salute the military, he bows down in front of every service member in uniform. To cut war out of the economy will be as big a shock to the system as the meltdown of Bear Stearns and Lehman Brothers, as telling as the folding of Bernard Madoff's Ponzi

empire. In 1967, in this same speech, "A Time to Break Silence," Dr. King called us "a society gone mad on war." "Somehow," he declared, "this madness must cease. We must stop now."

We can shut the military down one way only and that is by cutting off its funds. Congress has shown no will for such a tactic. Few politicians can risk losing their re-election by taking such a radical position. Only we, as citizens, can call a halt to war. We have a voice when we protest. And we make our loudest protest, in this country, through money, and most significantly through our taxes. In the 60s, to help fund the increasingly unpopular war in Vietnam, the Johnson administration added a surtax to everyone's telephone bill, which many people refused to pay. What change might take place if an overwhelming majority of Americans decide to withhold that amount of their federal taxes that go to pay for the defense budget? Resistance may offer the only course—a resistance to the machine that is killing the environment abroad and in this country, as well. War is so deeply embedded in the democratic system—in fact, in many ways it is the system—that we may need to grab it where it lives, and dies, and that's at the level of money.

So, here's something to at least think about. A colleague tells me that, for 2007, he paid federal income taxes at an effective rate of 17.9 percent. This means that he worked for the government the first nine weeks of the year to help pay for all those goods and services, from education to Social Security, that I am certain he finds necessary and essential. He did not begin pocketing his own wages until roughly the first week of March. But, here's the kicker. If roughly 54 percent of the federal budget goes to the Department of Defense—and that is a conservative figure—then he spent four and a half of those nine weeks helping to pay for the wars in Iraq and Afghanistan and for new weapons of destruction.

His tax bill for 2007 was approximately 25,000 dollars, 54 percent of which—or approximately 13,000 dollars—went to the Department of Defense. To make my example more vivid, I ask you to do the following two things: First, figure out how much you effectively gave to

the Pentagon last year. Second, and much harder, imagine yourself writing out a check for that amount, paid to the order of the Pentagon, and signed by you. In the case of my colleague, as I say, that would amount to 13,000 dollars. Now imagine placing that check carefully in an envelope, sealing it, stamping it, and sending it off in the mail. Most of us would hesitate, or even balk, at doing such a thing. And yet, in effect, that's exactly what happens: we send our money to that proxy for Washington DC, the Internal Revenue Service.

The only people who escape this system are those who do not earn enough to pay any taxes, but many of those people pay an even higher price by sending off their sons and daughters to fight—and perhaps even die—in a foreign country. Which might begin to happen with greater frequency as the economy sinks, and more and more young people who cannot find jobs sign up for the military as a last resort.

We must find a way, finally, to lead our collective lives as free people without being enslaved to the military. I am certainly not a commander, and I am definitely not in uniform, but I do reek of that old military/industrial/civilian complex. I cannot exclude myself from it. I am complicit. I am not happy about it; but I am an essential part of the whole plan. I do more than Support Our Troops, I support the military at a most basic level, the level of money.

Refusal to pay taxes will not, of course, appeal to everyone—nor should it. Which means that each person will have to find his or her own way to put a halt to the impending death of the planet at the hands of the United States military. It reveals something about those in high office that now ex-Vice President Dick Cheney, with his intimate and long-standing connections to Halliburton, can so unashamedly find ways of making money from the war. Senator Frank Lautenberg reported that, in one year, alone Cheney's stock options in Halliburton rose 3,281 percent. His 433,333 options increased dramatically from 241,498 dollars in 2004 to 8 million dollars in 2005. We do not need to look very far to discover why his stock

shot up so high, since by the end of 2005 Halliburton had amassed a profit from the war in Iraq in excess of 20 billion dollars.

We must discover new and innovative ways of doing much the opposite of what the vice president has so cynically managed to achieve. Cheney's was an easy task, ours will be difficult. His was opaque, ours must be transparent. His was mean-spirited and destructive. Ours will be liberating.[191]

NOTES

1 *Miami Herald*, January 7, 2009.

2 Andrew D. Selsky, "AP Confirms Secret Camp Inside Gitmo," February 6, 2008.

3 Pamela Hess, Associated Press, December 11, 2008.

4 Chalmers Johnson, *Blowback: The Costs and Consequences of American Empire* (Henry Holt and Company, 200), p. xi.

5 The unclassified report, "Operation Iraqi Freedom—By The Numbers," signed by Lt. General Teed Michael Moseley, Commander of CENTAF (Central Command Air Force), I found tremendously useful for statistics on the first months of the war. One can find the report posted on John Pike's rather useful website, http://www.globalsecurity.org. Pike is a well-known writer on military and intelligence policies.

6 The results of this study appeared in the *New England Journal of Medicine.*

7 Martin Luther King, Jr., *I Have A Dream: Writings and Speeches that Changed the World*, ed. James M. Washington (San Francisco, Harper San Francisco, 1992), p. 176.

8 Michael T. Klare, "Garrisoning the Global Gas Station, in *TomDispatch*, http://www.tomdispatch.com, June 13, 2008.

9 "US Troop Totals May Be Higher At End Of Surge," MSNBC, September 14, 2007. See also Stewart M. Powell, "Second Iraq Troop Surge Starts," Hearst Newspapers for May 21, 2007; and see http://www.globalsecurity.org/military/ops/iraq_ofbat.htm.

10 See Stewart Powell, *Seattle Post-Intelligencer*, May 21, 2007.

11 *Washington Post*, May 30, 2008.

12 "Iraq: Summary of US Forces Overview," Congressional Research Service, July 18, 2005.

13 Chalmers Johnson, "America's Empire of Bases," *TomDispatch*, January 15, 2004.

14 Op cit.

15 Johnson, "Empire of Bases."

16 Chalmers Johnson, "737 U.S. Military Bases—Global Empire," Information Clearing House, February 19, 2007.

17 Gar Smith, "How Fuel Efficient Is The Pentagon? The Military's Oil Addiction," Environmentalists Against War, *Earth Island Journal*, Winter 1990–91, accessed from http://www.envirosagainstwar.org/know/read.php?itemid=593, September 10, 2003.

18 "Operation Iraqi Freedom—By The Numbers," USCENTAF, April 30, 2003, 15.

19 Tara Copp, "Conflict With Iraq: Ground Forces Get Key Air Support," *Naples Daily News* (Florida), Scripps Howard News Service, March 23, 2003.

20 Nick Turse, "Bombs Over Baghdad: The Pentagon's Secret Air War In Iraq," *TomDispatch*, February 8, 2007.

21 *Air Force Link*, official website of the United States Air Force, April 9, 2003.

22 Harlan Ullman, in interview with David Martin, a CBS reporter, July 30, 2006. See also: http://www.commondreams.org/views03/0127-08.htm: November 2003. Along with James P. Wade, Ullman formulated the concept now known as "shock and awe." Ullman, a senior associate at the Center for Strategic and International Studies, published a book in 1996 titled, *Shock and Awe: Achieving Rapid Dominance*. On CBS, Ullman went on to talk about how the missiles would destroy everything that makes life in Baghdad livable: "You take the city down. You get rid of their power, water. In two, three, four, five days they are physically, emotionally, and psychologically exhausted."

23 Report compiled by the Director of Research, Iraqi Museum, the British Museum, and UNESCO, April 29, 2003.

24 Valentinas Mite, "Iraq: Archives, Libraries Devastated by War, Looting."

25 See http://www.rferl.org/featurearticleprint/2000/07/e5d79a8f-ab28-4ebc-

26 Bob Nichols, "Environmentalists Against War," August 3, 2004. http://www.onlinejournal.com/SpecialReports/071304Nichols/071304nichols.html.

27 Robert Bryce, "Gas Pains," *The Atlantic Monthly*, May 2005, p. 35.

28 Sohbet Karbuz, "US Military Oil Pains," *Energy Bulletin* (on-line), February 21, 2007. Karbuz is the former head of non-OECD energy statistics section of the International Energy Agency. See also *2006 Air Force Almanac*, *2006 Navy Almanac*; and *Congressional Budget Office*, the US Congress, August 2006.

29 Karbuz, "US Military Oil Pains."

30 Ibid. As of September 30, 2005 the Air Force had 5,986 aircraft in service. At the beginning of 2006, the Navy had 285 combat and support ships, and around 4,000 operational planes and helicopters. At the end of 2005, the Army had a combat vehicle fleet of approximately 28,000 armored vehicles.

31 "Guns and Global Warming: War, Peace and the Environment," Scientists for Global Responsibility, http://www.sgr.org.uk/ArmsControl/NFPAGMnotes_feb07.html. And see http://www.organicconsumers.org/perchlorate.com, and see "Guns and Global Warming: War, Peace and the Environment," at http://www.sgr.org.uk/armscontrol/NfPAGnotes_February 2007.html.

32 *CENTAF Fact Sheet* website.

33 Bryce, "Gas Pains," p. 34.

34 See Sohbet Karbuz, "US Military Energy Consumption—Facts and Figures," *Energy Bulletin* (on-line), May 20, 2007, Fact 14, p. 2.

35 Bryce, "Gas Pains," p. 34.

36 Karbuz, "US Military Energy Consumption."

37 Helen C. Caldicott, "Nuclear Power Still A Deadly Proposition," *Nuclear Age Peace Foundation* (on-line), August 17, 2004

38 As with almost everything else with the military, determining their exact oil consumption is puzzling and confusing. The official data comes from the DoD's annual energy management report, Federal Energy Management Program's annual report to congress, EIA/DoE's *Annual Energy Review*, and *DESC Factbook*. (The first three publications do not add fleet vehicle oil and non-fleet vehicle oil.) See also http://www.energyandcapital.com/article/print.php. According to the Defense Logistic Agency's website, as of November 20 the military had used 2.1 billion gallons of fuel (cited in Karbuz, "US Military Energy Consumption").

39 Karbuz, "Military Energy Consumption."

40 Op cit.

25 See http://www.rferl.org/featurearticleprint/2000/07/e5d79a8f-ab28-4ebc.

26 Bob Nichols, "Environmentalists Against War," August 3, 2004. http://www.onlinejournal.com/SpecialReports/071304Nichols/071304nichols.html.

27 Robert Bryce, "Gas Pains," *The Atlantic Monthly*, May 2005, p. 35.

28 Sohbet Karbuz, "US Military Oil Pains," *Energy Bulletin* (on-line), February 21, 2007. Karbuz is the former head of non-OECD energy statistics section of the International Energy Agency. See also *2006 Air Force Almanac*, *2006 Navy Almanac*; and *Congressional Budget Office*, the US Congress, August 2006.

29 Karbuz, "US Military Oil Pains."

30 Ibid. As of September 30, 2005 the Air Force had 5,986 aircraft in service. At the beginning of 2006, the Navy had 285 combat and support ships, and around 4,000 operational planes and helicopters. At the end of 2005, the Army had a combat vehicle fleet of approximately 28,000 armored vehicles.

31 "Guns and Global Warming: War, Peace and the Environment," Scientists for Global Responsibility, http://www.sgr.org.uk/ArmsControl/NFPAGMnotes_feb07.html. And see http://www.organicconsumers.org/perchlorate.com, and see "Guns and Global Warming: War, Peace and the Environment," at http://www.sgr.org.uk/armscontrol/NfPAGnotes_February 2007.html.

32 *CENTAF Fact Sheet* website.

33 Bryce, "Gas Pains," p. 34.

34 See Sohbet Karbuz, "US Military Energy Consumption—Facts and Figures," *Energy Bulletin* (on-line), May 20, 2007, Fact 14, p. 2.

35 Bryce, "Gas Pains," p. 34.

36 Karbuz, "US Military Energy Consumption."

37 Helen C. Caldicott, "Nuclear Power Still A Deadly Proposition," *Nuclear Age Peace Foundation* (on-line), August 17, 2004

38 As with almost everything else with the military, determining their exact oil consumption is puzzling and confusing. The official data comes from the DoD's annual energy management report, Federal Energy Management Program's annual report to congress, EIA/DoE's *Annual Energy Review*, and *DESC Factbook*. (The first three publications do not add fleet vehicle oil and non-fleet vehicle oil.) See also http://www.energyandcapital.com/article/print.php. According to the Defense Logistic Agency's website, as of November 2006 the military had used 2.1 billion gallons of fuel (cited in Karbuz, "US Military Energy Consumption").

39 Karbuz, "Military Energy Consumption."

40 Op cit.

41 Op cit. See also Janet Ginsberg, "The Most Fuel-Efficient That The Military Can Be," *Business Week*, March 28, 2005. What the military spent on fuel, Ginsberg maintains, "was only a tiny portion of the fuel bill. Far more money is spent on delivery."

42 http://www.energyandcapital.com/article/print.php. According to the *CIA World Factbook* (2006), only 35 countries out of 210 consume more oil per day than the Pentagon. See Karbuz, "US Military Oil Pains."

43 *Agence France-Presse* reports that "later, the Kuwaitis sought nominal payment for fuel supplied to US forces remaining in Iraq after Saddam's ouster."

44 See http://www.abovetopsecret.org.

45 See the website, *National Defense*, entry dated November 1, 2005.

46 Karbuz, "Military Energy Consumption."

47 Elizabeth Book, "Pentagon Needs Accurate Accounting of Fuel," *National Defense Magazine*, March 28, 2005.

48 http://www.energyandcapital.com/article/print.php.

49 Richard Lardner, "In Iraq, Private Contractors Outnumber US Troops," Associated Press, September 20, 2007. See also Sarah Meyers, "Iraq Security Companies and Training Camps," *Brussels Tribunal*, May 17, 2006.

50 See Jeremy Scahill, *Blackwater: The Rise of the World's Most Powerful Mercenary Army* (New York: Nation Books, 2007).

51 August Cole and Neil King, Jr., "Blackwater Furor May Alter Way US Contractors in Iraq Do Business," *Wall Street Journal*, October 3, 2007, p. 1. See also Robert Collier, "Global Security Firms Fill In As Private Contractors," *San Francisco Chronicle*, March 28, 2004.

52 Smith, "How Fuel Efficient Is The Pentagon?"

53 Op cit.

54 US Navy Official website, "Status of the Navy," as of November 28, 2007.

55 *TomDispatch*, January 15, 2004.

56 *Wikipedia*—"USS Abraham Lincoln."

57 Karbuz, p.1.

58 Ibid., p.4.

59 Tom Cutler, *The Armed Forces Journal*, July 1989.

60 Smith, "How Fuel Efficient Is The Pentagon? Military's Oil Addiction."

61 Karbuz, "US Military Energy Consumption." See also Tom Cutler on fuel efficiency, in *The Armed Forces Journal*, July 1989.

62 Janet Ginsberg, "The Most Fuel-Efficient The Military Can Be," *Business Week*, March 28, 2005. http://www.businessweek.com/magazine/content/01_36/b3747102.htm.

63 "Energy Statistics oil consumption (most recent by country)," *NationMaster*, http://www.nationmaster.com/red/graph/ene_oil_con-energy-oil-cons.

64 Karbuz, "US Military Energy Consumption—Facts and Figures."

65 Op cit.

66 "America's Secret Air War."

67 Bradley Graham, "Commanders Plan Eventual Consolidation of US Bases in Iraq," *Washington Post*, May 22, 2005.

68 Gar Smith, "How Efficient Is The Pentagon: The Military's Oil Addiction."

69 See Renae Merle, "Running Low on Ammo," *Washington Post*, July 12, 2004.

70 American Forces Press Service, "The M-16 Round's 'Friendly,' But Still Deadly," March 3, 1999.

71 See Friends of the Earth, "Green Group Calls for End to Bunker Fuel Use," November 13, 2007: "A study released last week found that more than 60,000 people died worldwide from shipping emissions in 2002, due in large part to the use of bunker fuel." (See also http://www.foe.org/)

72 George Monbiot, "We Are All Killers," *The Guardian*, February 28, 2006. See also Gregory Lamb, "Flying The Cleanly Skies?," *Christian Science Monitor*, February 12, 2007.

73 Meng-Dawn Cheng, "Research in Military Aircraft Emissions," SERDP (Strategic Environmental Research and Development Program), Oak Ridge National Laboratory.

74 Joachim D. Pleil, Leslie B. Smith, and Sanford D. Zelnick, "Personal Exposure to JP-8 Fuel Vapors and Exhaust at Air Force Bases," *Environmental Health Perspectives*, vol. 108, number 3, March 2000.

75 D.T. Harris, D. Sakiestewa, R.F. Robledo, and M. Witten, "Immunotoxicological Effects Of JP-8 Jet Fuel Exposure," in PubMed: www.pubmed.gov:1997 Jan–Feb, 13:43–55.

76 Jamais Cascio, "Fly Green," March 1, 2006: http://www.worldchanging.com/archives/004.164.html.

77 "U.S. Projects Increase in CO_2 Gases," Associated Press, *MSNBC.com*, March 3, 2007. See, too, Energy Information Administration, "Official Energy Statistics from the US Government"; and "Bush Climate Report Shows U.S. Greenhouse Gases Skyrocketing," *Environmental News Service* (on-line), March 5, 2007.

78 In 1998, the United States Department of Defense spent 2 billion dollars cleaning up installations in the states and its territories, but only a total of 18.6

million dollars cleaning up its bases in Great Britain, Germany, Belgium, Italy, Japan, and South Korea. The DoD allocated no money to the Philippines or Panama. See Michael Satchell, "What the Military Left Behind," *US News and World Report*, 128(3):30, 2000.

79 See Satchell.

80 op cit.

81 See http://www.globalministries.org/index2.php?option=com_content and table.

82 John Lindsay-Poland and Nick Morgan, *Overseas Military Bases and Environment*, Volume 3, Number 15, June 1998.

83 See http://www.viequesisland.com/navy/georgian.html. Porter is Associate Dean and Josiah Meigs Distinguished Professor, University of Georgia, Odum School of Ecology, School of Marine Programs.

84 Katherine T. McCaffrey, *Military Power and Popular Protest: The U.S. Navy in Vieques, Puerto Rico* (Rutgers University Press, 2002).

85 Kimberly Hefling, "Data Sought On Veterans' Suicide," Associated Press, December 12, 2007.

86 "Jobless After War: Veterans Find Tough Going," Associated Press, February 7, 2008.

87 For a discussion of Depleted Uranium, see Mark H. Gaffney's long and detailed essay, "US Use of Radiological Weapons Calls For An International Tribunal," published on-line on a website that has been there from the beginning of the wars: http://www.informationclearinghouse.org, August 23, 2007.

88 Bob Nichols, "Radiation in Iraq Equals 250,000 Nagasaki Bombs," Environmentalists Against War, August 3, 2004. http://www.onlinejournal.com/SpecialReports/071304Nichols/071304nichols.html.

89 See Robert James Parsons, "America's Big Dirty Secret," *Le Monde diplomatique* (March 2002): "The US conducted the first real operational tests against Baghdad in 1991. The war in Kosovo provided further opportunity to test, on impressively hard targets, DU weapon prototypes as well as weapons already in production. Afghanistan has seen an extension and amplification of such tests. But at the Pentagon there is little transparency about this."

90 Op cit. See also Larry Johnson, "Use of Depleted Uranium Weapons Lingers as Health Concern," *Seattle Post Intelligencer*, August 4, 2003.

91 Brita May Rose, "America's Radioactive War," *CounterPunch*, November 11, 2004.

92 op cit.

93 Larry Johnson, "Iraqi Cancers, Birth Defects blamed on U.S. Depleted Uranium," *Seattle Post Intelligencer*, November 12, 2002. See also Mark Gould and Jon Ungoed-Thomas, "UK Radiation Jump Blamed on Iraq Shells," *The Sunday Times* (London), February 19, 2006. And see also Larry Johnson, "Use of Depleted Uranium."

94 See Mark H. Gaffney, "U.S. Use of Radiological Weapons Calls For An International Tribunal," http://www.theinformationclearinghouse.org, August 23, 2007.

95 Robert James Parsons, "America's Big Dirty Secret," *Le Monde diplomatique*, March 2002.

96 Quoted in *Project Censored*, Number 15, 2004.

97 Johnson, "Use of Depleted Uranium."

98 Johnson, "Iraqi Cancers." See also Deborah Hastings, "Sickened Iraq Vets Cite Depleted Uranium," *The Boston Globe*, August 12, 2006.

99 Quoted in James P. Tucker, Jr., "Depleted Uranium Death Toll Among US War Veterans Tops 11,000," *Global Research* website, October 29, 2006." http://www.americanfreepress.net/html/du_death_toll.html.

100 Quoted in Christopher Bollyn, "Depleted uranium Blamed for Cancer Clusters Among Iraq War Vets," Nuclear Age Peace Foundation, August 15, 2004.

101 "Depleted Nuclear Weapons, Genocide and That's Right—The United States," June 27, 2005: http://tabacco.myblogsite.com/.

102 Cited in Johnson, "Iraqi Cancers."

103 "Does Iraq's Depleted Uranium Pose A Health Risk," *The Lancet*, volume 351 (9103), February 28, 1998, p. 657.

104 "War or Not, Iraq's Environment a Casualty," *Environment News*, in http://www.environmentalistsagainstwar.org, March 18, 2003.

105 *The Lancet*, 657.

106 Cited by Johnson, in "Iraqi Cancers."

107 See Christopher Bollyn.

108 op cit.

109 *Life* magazine, May 1995. Riegle was a Democrat from Michigan.

110 See Michael Williams, UN Environmental spokesperson, in "Weapons Dust Worries Iraqis. US Concerned," by Thomas D. Williams, *The Hartford Courant*, November 6, 2004, http://www.environmentalistsagainstwar.org. See also Gaffney.

111 Gaffney.

112 Alexandra C. Miller, et al, "Depleted Uranium-Catalyzed Oxidative DNA Damage: Absence of Significant Alpha Particle Decay," *Journal of Inorganic Biochemistry*, vol. 91(2002), 246–52.

113 Interview with physicist Michio Kaku, in *Poison Dust*, a film by Sara Flanders and Su Harris, 2005.

114 "Depleted Uranium in Iraqi Soil, Air May Cause Health Issues," interview with Diane Henshel and Hina Alam, in *Indiana University Daily Student* (http://www.ids news.com), November 2, 2003.

115 MSNBC News Service, March 1, 2006. Williams, "Weapons Dust": "More than 230,000 of the 697,000 US soldiers who served in that war [Enduring Freedom] have filed disability claims for various maladies, the majority of which fall under the broad category of gulf war syndrome."

116 See Gaffney.

117 See http://www.hrw.org/reports/2003/usa/203/10.htm.

118 Seymour Hersh, "Up In The Air: Where Is the Iraq War Headed Now?" *The New Yorker*, December 5, 2005.

119 USCENTAF Fact Sheet.

120 Nick Turse, "Bombs Over Baghdad: The Pentagon's Secret Air War In Iraq," *TomDispatch*, Februrary 7, 2007.

121 http://www. globalsecurity.org. Guided Bomb Unit 28 (GBU-28). See also the Military Analysis Network, Guided Bomb Unit-28. http://www.globalsecurity.org: "BLU-82 Commando Vault, Daisy Cutter.

122 See the website http://www.ucsusa.org, May 2005.

123 Parsons, *Le Monde diplomatique*, March 2002.

124 See *The London Daily Mail* reporter David Williams on http://www.workingforchange.com, November 8, 2001.

125 Richard Norton-Taylor, "The return of the B-52s," *The Guardian*, November 2, 2001.

126 Paul Walker, "US Bombing: The Myth of Surgical Bombing In The Gulf War," deoxy.org/wc/wc-myth.htm. See also globalsecurity.org: "BLU-82 Commando Vault, Daisy Cutter."

127 See *Human Rights Watch Backgrounder*, http://www.HRW.org, "Cluster Bombs in Afghanistan," October 2001.

128 Nick Turse, "The Air War In Iraq Uncovered," *TomDispatch*, May 25, 2007. http://www.tomdispatch.com/index.mhtml?pid=198624.

129 Op cit. See also Vernon Loeb, "Group Says U.S. Broke Law In Use of Cluster bombs in Afghanistan," *Washington Post*, December 18, 2002.

130 Op cit.

131 Op cit.

132 Marshall Brain, "How Bunker Busters Work," on http://www.howstuffworks.com.

133 http://www.globalsecurity.org GBU-43B, "Mother Of All Bombs" and MOAB-Massive Ordnance Air Blast Bomb.

134 Canadian Centre for Occupational Health and Safety, December 23, 1997. http://www.ccohs.ca/oshanswers/chemicals/chem_profiles/aluminum_powder/health_alu.html.

135 "Pentagon Renews Attack on Public Health and the Environment," March 3, 2005, http://www.commondreams.org.

136 See http://www.organicconsumers.org/perchlorate.com, and see Scientists For Global Responsibility, "Guns and Global Warming; War, Peace and the Environment," at http://www.sgr.org.uk/armscontrol/NfPaGnotes_February 2007.html.

137 "War Or Not, Iraq's Environment A Casualty," *Environment News*, March 18, 2003.

138 See *GlobalSecurity* on the subject of napalm.

139 See Andrew Buncombe, "US Admits It Used Napalm In Iraq," *The Independent*, August 10, 2003; *Daily Kos*: "Fallujah: Napalm By Any Other Name" http://www.dailykos.com/story/2004/11/21/32937/834.; James W. Crawley, "Officials Confirm Dropping Firebombs On Iraqi Troops," *San Diego Union-Tribune*, August 05, 2003; and Lindsay Murdoch, "Dead Bodies Are Everywhere," *Sydney Morning Herald*, March 22, 2003.

140 UK Ministry of Defense letter to Alice Mahon, http//:www.rainews24.rai.it/ran24/inchiesta/foto/documento_ministero.jpg.

141 See Murdoch, "Dead Bodies Are Everywhere."

142 *CBS News*, "Cold War Water Pollution," Los Angeles, January 7, 2003. See also "Guns and Global Warming: War, Peace and the Environment," Scientists for Global Responsibility.

143 Laurie Duncan, "Kuwait Oil Fires, Persian Gulf War," http://www.espionageinfo.com, December 18, 2007.

144 Ben Feller, "War Costs for Iraq and Afghanistan Hit 850 Billion," *Huffington Post*, June 30, 2008.

145 Joseph E. Stiglitz and Linda Bilmes, *The Three Trillion Dollar War: The True Cost of the Iraq Conflict* (New York: W.W. Norton, 2008).

146 Robert Bryce, "As Green As A Neocon: Why Iraq Hawks Are Driving Priuses," http://www.slate.com, January 25, 2005.

147 See the following: Rory McCarthy, "Gaza Doctors Say Patients Suffering Mystery Injuries After Israeli Attacks," *The Guardian*, October 18, 2006; "Embedded Weapons-Grade Tungsten Alloy Shrapnel Rapidly Induces Metastatic High-Grade Rhabdomyosarcomas in F344 Rats," Kalinich et al, *Environmental health Perspectives*, vol. 113, Number 6, June 2005. http://www.eponline.org/members/2005/7791/7791.html; Noah Shachtman, "Cancer Worries For New U.S. Bombs," Noah Shachtman.com, May 2, 2006.

148 Lisa Miller, "Belief Watch: Tree Hugger," *Newsweek*, March 19, 2007.

149 Mark Hertsgaard, "Green Goes Grassroots: The Environmental Movement Today," *The Nation*, July 31/August 7, 2006, p. 11.

150 Sabrina Tavernise, "Iraqi Death Toll Exceeded 34,000 in 2006, UN Says," *New York Times*, January 16, 2007. *The Lancet* created some controversy when it reported, in October 2006, that 650,000 Iraqis had been killed up to that point. The figure represents 2.5 percent of the entire population of the country.

151 United Nations Desertification Conference, Nairobi, 2003. http://www.wateryear.2003.org/en/ev.php.CRL.

152 The CNA report is dated April 16, 2007. To illustrate the very tight links between these conservative think tanks: Harlan Ullman, the man who conceived of and promulgated the strategy of "shock and awe," serves as senior vice-president of CNA.

153 Richard Perle and David Frum, *An End To Evil: How To Win The War On Terror* (New York: Random House, 2003).

154 "Global Warming May Be Security Factor," Associated Press, April 16, 2007.

155 Matt Simmons, "Future Energy Challenges: Are We In Denial Or Facing Hard Truths?" Sand Ridge Energy, September 23, 2007.

156 Harris Poll, July 26, 2005, "U.S. Adults Paying Less Attention to the Events in Afghanistan Than Those in Iraq," http://harrisinteractive.com/harris_poll/index.asp?PID=587.

157 See Sonali Kolhatkar and James Ingalls, *Bleeding Afghanistan: Washington, Warlords, and the Propaganda of Silence* (New York and London: Seven Stories Press, 2006), p. 12.

158 See Human Rights Backgrounder, "Cluster Bombs in Afghanistan," and "UN Slams Use of Cluster Bombs as 8 Die," *The News International* (Pakistan), October 26, 2001.

159 See "Afghanistan: UN To Clear Coalition Cluster Bombs," UN Office for the Coordination of Humanitarian Affairs, *IRINnews*, January 2, 2002, http://www.irinnews.org/report.asp?ReportID=18295&SelectRegion=Central_Asia; "Fatally Flawed: Cluster Bombs and Their Use by the United States in

Afghanistan," *Human Rights Watch Report*, Volume 14, no. 7 (G), http://www.HRW.org, December 2002.

160 Michael Kamber, "Afghanistan's Environmental Casualties," *Mother Jones*, March 6, 2002. "Half of the world population and 80 percent of rural households in developing countries cook with solid fuels like wood, coal, crop residues and dung. In many instances, women cook around open fires, typically with a pot atop three large stones and a wood fire in the middle:

> Indoor air pollution, including smoke and other products of incomplete combustion like carbon monoxide, is a major environmental risk factor, usually ranking behind lack of lean water, poor sanitation and malnutrition. The problem does not only afflict the poorest populations. Many affluent households cook on traditional biomass stoves or open fires by choice or because they live in rural areas without electricity or access to modern fuels. "The World Health Organization estimates that 1.6 million people a year die of health effects resulting from toxic indoor air. The problem disproportionately falls on women and children who spend hours each day around the hearth. "Of that 1.6 million, one million children die of pneumonia, and 600,000 women die prematurely of chronic obstructive pulmonary diseases like bronchitis and emphysema. (Amanda Leigh Haag, "Stove For the Developing World's Health," *New York Times*, January 22, 2008.)

161 Lisa Burgess, "U.S. Troop Presence in Afghanistan at 17,900, and Expected To Hold Steady," *Stars and Stripes*, July 9, 2004.

162 Lolita C. Baldor, "Marines Prepare to Send 3,200 Troops to Afghanistan," January 14, 2008.

163 *Army Times*, July 5, 2008.

164 *USA Today*, December 20, 2008.

165 See the conservative Jamestown Foundation for statistics on the number of suicide attacks and the number of civilians killed.

166 On opium production and statistics in general about Afghanistan, see Jason Straziuso, "US Casualties in Afghanistan Hit Record," Associated Press, December 32, 2006.

167 "In 2008, Afghanistan Claims record Number of Soliders Killed," *Agence France-Presse*, January 3, 2009.

168 For data about CAS, besides CENTAF, see http://www.snappingturtle.net/ffit/archives/2007_04.html.

169 Tom Englehardt, "Don't Let Obama Break Your Heart," *TomDispatch*, November 11, 2008.

170 See Marc Herold's website, *Archivistan*.

171 Steve Komorow, "Military's Fuel Costs Spur Look At Gas Guzzlers," *USA Today*, March 8, 2006.

172 Benjamin Lambeth, "Air Power Against Terror: America's Conduct of Operation Enduring Freedom," Rand Corporation, 2005.

173 See http://www.globalsecurity.org.

174 Michael R. Gordon and Steven Lee Myers, *New York Times*, "Taliban's Troops Hit As Allies Plan For Commando Raids," October 11, 2001.

175 See http://www.military.com: "National Guard."

176 Department of the *Army Field Manual* (FM 20-32), "Mine/Countermine Operations," May 29, 1998, Chapter Four.

177 See the *Landmine Monitor Report*, 1999, p. 330.

178 See Sharon Begley, "Learning to Love Climate 'Adaptation,'" *Newsweek*, December, 31, 2007.

179 Thomas Friedman, "The Power of Green," *New York Times Magazine*, April 15, 2007.

180 Robert Burns, "Gates Considers Army's Expansion Plan," Associated Press, September 27, 2007.

181 John Heilprin, "Rice Urges Nations To Find Cleaner Fuels," Associated Press, September 27, 2007.

182 New Scientist, "US Agencies Accused of Muzzling Climate Experts," February 25, 2006.

183 *New York Times*, December 15, 2007.

184 Thomas Fuller, "Climate Plan Looks Beyond The End Of Bush's Tenure," *New York Times*, December 16, 2007.

185 "Closing The Fuel Carbon Cycle," *EPRI Journal*, Spring 2007.

186 "Road Kill," August 5, 2007.

187 See Zoltán Grossman, "U.S. Military Consumption," at http://www.scienceforpeace.ca

188 Deb Reichman, "A Presidential Welcome for USS George H. W. Bush," Associated Press, January 10, 2009.

189 Frantz Fanon, *The Wretched of the Earth* (New York: Grove Press, 1963)

190 Steve Martinot, "The Military and Global Warming," *Synthesis/Regeneration* 42 (winter 2007).

191 See "The Raw Story," on-line, October 11, 2005.